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TO

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PREPARED FOR THE BRITISH
ASSOCIATION FOR THE
ADVANCEMENT OF
SCIENCE 1907
MEETING

UNDER THE DIRECTION OF THE
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PREFACE.

THIS further edition of the "Guide to Leicester and Neighbourhood" is specially prepared for the Meeting of the British Association for the Advancement of Science, in that town, July—August, 1907, by the direction of the Publications Sub-Committee. Various portions of the first edition, which was written by the present editor, have been omitted, and the scientific section greatly enlarged, the following papers having been added: — "Geology and Pre-Cambrian Rocks," by Prof. W. W. Watts, M.A., F.R.S.; "Geological Notes," by Mr. C. Fox-Strangways, F.G.S.; "Botany," by Mr. W. Bell; "Zoology," and "The Cryptogamic Flora of Leicestershire," by Mr. A. R. Horwood; and "Entomology," by Mr. Frank Bouskell, F.E.S. A detailed account of the Charnwood Forest, written by Mr. J. B. Everard, J.P., M.Inst.C.E., and illustrated with photographs by Dr. R. C. Stewart, and a short paper on "The Stone Roads, Canals, and Railways of Leicestershire," by Mr. Clement E. Stretton, C.E.,

have also been added. For the exhaustive Bibliography relating to the town and county, the Committee are indebted to Mr. A. R. Horwood, Assistant Curator, Leicester Museum.

To all these gentlemen the best thanks of the Committee are tendered for their kindness in placing their expert knowledge at the service of the Association, and in appreciation of the great amount of work which these papers have entailed.

The cordial thanks of the Committee are also accorded Mr. Alfred Colson, M.Inst.C.E., who, as Chairman of the Executive Committee, is largely responsible for the arrangement of this Guide, and who has taken the greatest interest and trouble in its production.

G. Clarke Nuttall,
Editor for the Publications Sub-Committee.

St. Albans,
July, 1907.

NOTE.

The Publications Sub-Committee desire to put on record their appreciation of the very valuable services rendered by Mrs. G. Clarke Nuttall in connection with the production of this work.

J. M. GIMSON,
Chairman

Leicester,
July, 1907.

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HISTORIC LEICESTER.

LEICESTER is one of the most ancient towns in the British Isles, and one of the most interesting to the antiquary.

When the Roman Legions penetrated into the thick forests of the Midlands, 50 years after Christ, to the spot where Leicester now stands, they found by the banks of a winding stream a colony of blue-stained, skin-clad Britons who called their encampment of straw-roofed huts, Caer Leir—the city by the Leir. The Roman general—Ostorius Scapula—was not slow to appreciate the value of the situation for a military camp, and so, subduing the natives, he pitched his tents on the rising ground above the river. There he established a large encampment surrounded by mounds nearly two miles in circuit and capable of holding 12,000 to 20,000 men. He called it Ratæ Coritanorum, the camp of the Coritani, because the British tribes he found there were the Coritani. Thirty years later the earthen defences gave place to strong walls of stone, and a typical Roman town of villas, temples, and baths gradually rose on the site. This was in the days of Julius Agricola, Governor of Britain, under whose rule conquerors and conquered became welded together, to the great advantage of the rude savages, who learnt much in custom, handicrafts, and dress from their Roman masters.

It is interesting now-a-days to locate the exact position of this Roman Leicester, and we are able to do so because the original Roman walls existed, more or less, as a basis

for the town walls for many centuries. They enclosed about 130 acres, and we are told that the north wall extended in a straight line a little inside the present Soar Lane and Sanvey Gate, from the river to the angle of Church Gate. The east wall ran inside the line of Church Gate and Gallowtree Gate to the angle of Horsefair Street; the south wall proceeded by Horsefair Street and Millstone Lane to a point in or near St. Mary's Churchyard; and the west wall, whose existence, however, is somewhat problematical, may have completed the enclosure by passing from this point to the end of Soar Lane, whence we started. And in these walls were the four gates.

This Roman Camp was doubtless of particular importance because it was near the intersection of three of the chief lines of communication through the island. The Fosse Way (Via Foss-ata), running from Grimsby to Seaton in Devonshire, passed either close by or actually through the town; the Via Devana, or Gartree Street, ran from Colchester to Chester and passed through Leicester (the present New Walk and the old Anstey Lane are parts of this road), and the well-known Watling Street, which started in Kent and went to Wroxeter, near Shrewsbury, crossed the Fosse Way some 14 miles out of Leicester. During the 400 years that the Romans remained in Britain, Ratæ, as the town was now called, naturally developed and spread beyond the original walls, particularly on the south-west, where the rich citizens probably built their homes. The floor of a whole Roman villa, with a terrace

120 feet long, was unearthed in a cherry orchard in that locality in 1851, and the beautiful mosaics of which it was composed were placed in the local Museum, where they may now be seen.

In A.D. 120, an event of great importance occurred, for the Emperor Hadrian visited this fair corner of his dominions and made a grand progress from South to North, passing through Leicester on his way. A record of his royal tour and a unique relic of Roman days in Britain still exists in Leicester Museum in the shape of a milestone found 2 miles outside the town in 1771, with a laudatory inscription to this Emperor upon it, and the information "from Ratæ 2 miles."

In A.D. 450 the Roman protection was withdrawn from Britain, and the native inhabitants, accustomed to Rome's strong rule, felt themselves helpless in the face of the invasions of the Picts and Scots. so they invited the Angles, a warlike people on the shores of the German Elbe, to come over to help, with results disastrous to themselves, for the new-comers gradually drove out the inhabitants into the wilds of the west, and established themselves in Britain, making it now Englaland or England. Eventually, about A.D. 753, the country was divided into seven kingdoms, the Midland Kingdom, Mercia, being one of the most important, and Leicester, or Legro-ceaster, the camp on the Legre, or Leire, its chief city. It is curious to note that the Roman name Ratæ disappears entirely, and that we revert once more to the primitive idea of a camp by the Leir.

But before this time the Angles had become Christianised, and churches began to take the place of heathen temples, though in the majority of cases, as in Leicester and elsewhere, the old sites for worship were retained. Eventually Mercia became a diocese, and its chief city was naturally the seat of a Bishop. The first Leicester Bishop was Cuthwin, who lived in 679, and his cathedral was a little rude church—the first St. Margaret's—on the very site of the St. Margaret's of to-day.

About 150 years later the Anglo-Saxon town had in turn to surrender to a fierce onslaught of the Danes, and with Derby, Nottingham, Stamford, and Lincoln formed the Danish "Five Boroughs." These invaders did their best to stamp out Christianity and throw back civilization, but the town was freed from their tyranny in 920 by Ethelflœda —worthy daughter of a noble father, Alfred the Great. She also restored the buildings and walls of the town and revived Christianity (never quite dead) in its inhabitants.

For some time bloody contests between Danes and Saxons often raged round Leicester, but gradually the town settled down into a normal English town or "burgh," which the shire was bound to maintain, and within whose walls men were protected by a special peace. It had a "Portmanmote," or Borough Court, which did justice to men within its walls; it was a market town, with a market place; it had a Mint and a Moneyer. There was, however, a sharp struggle again when William the Conqueror marched upon

it in 1068, but the resistance was ineffective and it fell into his hands. Doomsday Book gives an exact account of what Leicester was at this date. It was a free borough standing on no man's land and in no hundred, and there were 322 houses, 2 mills, and 6 parish churches, viz., St. Margaret's, St. Martin's, St. Nicholas, All Saints' (lineal descendants of which are still town churches), St. Peter's and St. Michael's (all traces of both of which have since disappeared).

William made a certain Hugh de Grentesmaisnell governor of the town, and Leicester Castle was built by him as a fortified stronghold. The town seems to have suffered severely under him ; among other impositions the ancient right of trial by a jury of 24 burgesses was done away with and the unfair ordeal by battle substituted. But he did not long oppress Leicester. He fell under the displeasure of Henry I., was driven out of the town, and his castle was destroyed. In its second governor Leicester was fortunate. This was Robert de Beaumont, Earl of Leicester, "in wordly affairs the wisest man between England and Jerusalem." He rebuilt the Castle, fortifying it strongly, and added a great hall of magnificent proportions, which still remains the basis of the Assize Court of to-day. St. Mary de Castro, the Castle Church, was also restored and partly rebuilt by him. Among the wise acts of his administration was the abolition of the ordeal by battle and the revival of trial by jury. He also remitted some of the heavy burden of taxation that had been laid

upon the town by his predecessor, and when he relinquished his power into the hands of his son, Robert the Hunchback, and retired to an Abbey in France, it was to the regret of all his subjects. Robert the Hunchback seems to have been anxious also to do his best for his people, but he is chiefly remembered because he founded, outside the walls, the famous Leicester Abbey of St. Mary de Pratis. His son, Robert Blanchemains, brought disaster on the town by championing the cause of Queen Eleanor against her husband, King Henry II. In revenge the King laid siege to Leicester in 1173, and the town was sacked and burnt, its walls levelled, and many of its inhabitants slaughtered. In fact so completely was it crushed that it lay for 25 years practically a dead town. Then Earl Robert had his possessions restored to him, and the town began to revive and fill again.

And now we come to that period in the History of Leicester when the town played the greatest part in the affairs of the nation, and when "giants arose in the land," for the direct line of the Beaumonts came to an end in 1204, and the Earldom of Leicester passed through Amicia, a daughter of the 2nd Earl, to her husband, Simon de Montfort, and his son was the famous Earl Simon de Montfort who, at eight years old, on the death of his father, entered into the Earldom. Now the little Simon was placed under the influence of a good man, who had himself been connected with the town as Rector of St. Margaret's and Archdeacon of Leicester—the renowned Robert Grosstete, Bishop of Lincoln—and so

the lad grew up in nobility of character as well as in beauty of person. By hereditary right he was Lord High Steward of England, and by right of character he became also leader of the English barons. Though married to a sister of the King, Earl Simon headed the barons in their struggle for freedom against his autocracy, and it was he who held the King a prisoner after the battle of Lewes and compelled him to summon, in 1265, England's first Parliament of two Knights from every shire and two burgesses from every town to represent the nation. Shortly after, at the battle of Evesham, the great Earl was killed, but "his memory lasted long," for the people of the land had trusted greatly in him, as the protector of the oppressed, the father of the poor, the saviour of his country, and the avenger of the Church. And the clergy called him "Sir Simon the Righteous," but the common people called him "Sir Simon the King."

Among the benefits which he conferred upon Leicester in particular was the grant of a large tract of land in the Southfields for the public use of the burgesses, and the present Victoria Park is part of this gift, which successive generations have handed on through the centuries. It was under his patronage, too, that the Friars first settled in Leicester, the Black Friars settling in the district about our present High Cross Street and Friars Causeway, and the Grey Friars near St. Martin's, in the locality still known to us as Grey Friars. His religious fervour led him, under pressure from the burgesses, into an

act of intolerance, namely, the expulsion of all the Jews from the town, "in my time or in the time of any of my heirs till the end of the world."

After Simon de Montfort's death his titles and estates were confiscated by the King and conferred upon his (the King's) second son, Edmond Crouchback, Earl of Lancaster. Edmond was not much in the town, and his governorship is chiefly noticeable for his grant to the town, in 1277, of the great charter whereby the old liberties of the burgesses were confirmed and new ones granted. His eldest son succeeded him; and then his second son, Henry, Earl of Leicester and Lancaster, followed, and under him the Castle was the centre of brilliant tournaments and lavish hospitality, for the Earl loved to entertain the flower of England's nobility. But he did not forget his poorer brethren, for whom he founded the Trinity Hospital to accommodate 50 poor old men. His son, Henry Wryneck, was even more splendid than his father, and was known as "The Good Duke of Leicester" and "The Prince of the Chevaliers of the Middle Ages." His daughter married John of Gaunt, younger son of King Edward III., and so, a few years later, the Good Duke having no son, we find Leicester again passing to a great and notable man, the husband of a daughter of the house.

Now though John of Gaunt was exceedingly rich and had many fair homes, still Leicester Castle seems to have been one of his favourite dwelling places, and there he spent much of his time, living in the state that befitted a

Prince of the blood-royal, and acting as the patron of literature and music and as the friend of religious reform. A son and a father of Kings, a gallant soldier, a clever man, the friend of Chaucer and Wycliffe, the Earldom of Leicester reached its zenith in him. "At his death there were no more Earls of Leicester, for the Earldom ceased . . . because the glory of the Earldom was merged in the glory of the Throne;" for the year of his death, 1399, saw his son, Henry Bollingbroke, King of England. (Those who in later times held the title of Earl of Leicester had no real connection with the town).

At this date Leicester contained some 5000 or 6000 inhabitants; ravages of plague checked the natural increase of the population, as, for instance, one epidemic which, in 1348, destroyed more than one-third of the population. The wool trade was developing, and the town not only made russet cloth for its own wear, but also exported it to other places. Two markets were held weekly—the Wednesday market in the High Cross Street, where it continued until quite recent days, and the Saturday market on its present site, just in the corner of the town walls. A Mayor and Aldermen administered the affairs of the town. The great religious Guilds were just beginning to make their appearance; originally their object was to provide Masses for the souls of living and dead members, but as they grew in wealth they grew in power, until they became a factor to be reckoned with in town affairs. The greatest town holiday was a procession of St. George's Guild, called

"The Riding of the George," when huge figures of St. George and the Dragon were carried round the town (see page 46).

The first 50 years of the 15th century are chiefly remarkable in the town's history because Parliament assembled no less than three times there. In 1414 its special work was the suppression of the Lollards by death at the stake and the confiscation of their property. It has been called the "Fire and Faggot Parliament," and "must ever be identified with the Town of Leicester, where the tares of heresy having been grown the torch for their destruction was kindled."

In 1426, the Parliament of Bats, so called because its members armed themselves with clubs or "bats," as they were forbidden to carry weapons at the sittings, was held in the Castle. Henry VI., a little lad of five years, was formally received into the ranks of Knighthood in St. Mary's Church during the sitting of this Parliament (see page 67).

In 1450 Parliament met for the third and last time in this central spot, Westminster being considered unhealthy at the time.

In the Wars of the Roses that immediately followed Leicester declared itself upon the York side, and we find King Edward IV., whose wife was the widow of a Leicestershire man, granted in return a Charter to the town for the appointment of Justices of the Peace and a Recorder for the Borough.

The next events that excited the town were two visits from King Richard III., the first to arrange for quelling the insurrection of the Duke of Buckingham, and the second

when on his way to the fatal Bosworth Field. And to the town he was brought back a corpse after the battle (as had been prophesied by a wise woman of Leicester), and buried in the Church of Grey Friars Monastery, 1485. But in Henry VIII.'s reign, when the Monastery was suppressed in common with all others, his bones were seized by the mob and thrown over Bow Bridge into the river. A tablet on the bridge now records the fact.

For the next 50 years little of interest seems to have happened in the town, with the exception of the ceremonial visit, in 1529, of the Mayor and his "brethren," one November day, to the Abbey in the meadows, to view the remains of the weary and harassed old man who, three days earlier, had come to crave a haven there—the once illustrious Cardinal Wolsey. But soon after a great religious upheaval stirred the place to its very depths, for in 1537 the Act for the Suppression of the Monasteries was passed, and the little confraternity at Leicester Abbey was scattered and the Abbey stripped and sold. Other religious homes within the town were similarly treated. Ten years later even the parish churches had their adornments and vestments seized or destroyed. The religious Guilds shared in the general dismantling, and they, too, were dissolved and their goods forfeited to the Crown. It is curious to note, however, that the Corporation had no intention of allowing the inhabitants to become irreligious, for a little later it was decided that week-day services (in addition to the Sunday ones) were to be

held on Wednesdays and Fridays, and at least one person from every house in the town was compelled to attend both of these services under a rigorously enforced penalty of 4d.

In 1554 the town must have been also stirred by the execution of the sweet Lady Jane Grey, dwelling at Bradgate House, only some six miles from Leicester, and who must have been well known to many of the inhabitants.

And now we come to a period of great distress in Leicester, so much so, indeed, that it is frequently called "The poor town of Leicester" in official records. Poverty, unrelieved by the beneficence of the religious houses, was rampant, education that had hitherto been in the hands of the religious bodies was wanting, and medical skill for the same reason was unobtainable, while the decaying and ruined homes of the fraternities added to the sense of desolation. But naturally these evils brought forth remedial efforts. A free Grammar School was erected in High Cross Street in 1574, and the course of instruction in it minutely laid down. Measures of relief were attempted by the authorities, begging sternly suppressed, and an effort made to introduce local industries. The borough, too, was incorporated by order of Queen Elizabeth, and henceforth was able in the name of the "Mayor and Burgesses of the Town of Leicester" to hold property and buy and sell the same. Elizabeth likewise made over to them much of the property of the old Guilds and Colleges so that it might be used for the benefit of the town. The fine old

Hall of the Corpus Christi Guild was now purchased for a Town Hall. Naturally the excitement of the expected advent of the Spanish Armada was felt in Leicester as elsewhere, and though Leicester's military force then stood at only "10 pikemen," yet 2000 men were fitted out from town and county and sent to Tilbury Camp, while hundreds of others held themselves ready armed at home for defensive purposes. When the glad news of the defeat of the Armada arrived the occasion was celebrated by a grand banquet, given in the Town Hall by the Mayor. When James I. came to the throne, his wife and little daughter Elizabeth paid a visit of four days to the place, for which great preparations were made by the authorities. James himself afterwards visited the town several times, but his visits grew to be unwelcome rather than otherwise, as they entailed so much expense to the burgesses. In the earlier part of his reign another terrible visitation of plague fell upon the borough.

When Charles I. succeeded his father exciting days were again in store, and as Leicester tended to side with Parliament against the King in the friction that was going on, Charles felt it wise to personally visit the town to revive royalty. So in 1642 he spent three days there, being received respectfully by the Mayor and Corporation and attending service at St. Martin's Church. But when the Civil War actually broke out, Leicester declared itself on the side of the Parliament. So in 1645 the Royalist army laid siege to Leicester. The King lodged at Aylestone,

just outside the town, and Prince Rupert had charge of the military operations. But the defending force numbered only 2000 men, who were insufficiently armed, the town defences were weak, and capitulation was inevitable, though a final stand was made at the High Cross.

The King's soldiers pillaged and slaughtered without mercy. One account says "the King encouraged this," another declares it was to the King's "exceeding regret." John Bunyan was a soldier in the siege, serving, probably, on the King's side, and his conversion dates from a miraculous escape from death that he had there. When he returned to the town in later years he came as a fervent preacher of the gospel.

A fortnight later, after the battle of Naseby, Oliver Cromwell invested the town, which was, however, spared a second siege after some preliminary firing, for Lord Loughborough, who was holding it for the King, recognised the weakness of his position, and capitulated on honourable terms.

Nearly a year later Leicester again saw its Sovereign, but not this time as a conqueror, nor was he received in state by the Mayor and Corporation, for he came as a prisoner, having been handed over by the faithless Scots to the custody of the Parliamentary Commissioners, and lay in the town one night on his way south. Cromwell visited the town on various occasions, and the borough accounts include an item of £2 6s. 3d., paid for "wine, biskets, beare, and tobacko, when Mr. Maior and the Aldermen went to visit Lieutenant-General

Cromwell at his going into the North."

And now Leicester entered on a long period of stagnation, and its inhabitants lived the restricted, uneventful lives that are apt to characterise a small country town. Occasionally they were stirred by some great personage passing through the place, who was received in state and entertained by Mr. Mayor and the Aldermen, of which entertainment the bills are still carefully preserved. Thus, Anne Hyde, Duchess of York, afterwards Queen of England, was one such, and twenty-eight years later her daughter, Anne, "stole down the back stairs in a dressing gown and slippers," and, passing through Market Harborough, where the inhabitants made up part of the deficiencies of her toilet by presenting her with a gown, &c., came to Leicester and was lodged at Lord's Place in High Street by the Corporation. She was treated to two noble banquets, and seemed "wonderful pleasant and cheerful." This was the historic occasion when she abandoned her father, poor James II., to join her husband, Prince George of Denmark, who was then opposing him.

King William III., attended by a splendid retinue, also excited much interest, though perhaps not much more than various Muscovite Princes (some probably impostors), who were honoured by the Corporation as they made pseudo-royal progresses through the country. The staple industry of the town was now the weaving of framework stockings, and in 1727 there were probably five or six hundred framework knitters in Leicester. The total

population neither increased nor decreased. We find that at the beginning of the 18th century it was practically only the same as at the beginning of the 14th, namely, about 5000 souls. In the middle of the 18th century Leicester, however, awoke and began to grow, so that by the beginning of the 19th century it was treble this size. It published its first paper, *The Leicester Journal*, in 1753, while seven years later it was brought even more into touch with the outside world by a stage coach beginning to run from London to Nottingham, which passed through Leicester. The first mail coach did not run until 1785, and then its advent marked a notable advance. All kinds of movements indicated that the town was commencing to assert itself. A regular cattle market was instituted in the place of promiscuous sales in the streets. The first banking enterprise was started; an attempt was made to light the chief thoroughfares, and the general water supply was improved by the erection of town pumps. A religious revival, too, took place, due to the preaching of John Wesley, who visited Leicester on various occasions, each time drawing crowded audiences of a thousand upwards. In 1771 the Leicester Infirmary was built on the site of the ancient Church of St. Sepulchre.

The year 1774 saw the disappearance of one great link with the past, namely, the four ancient Town Gates, which, though the walls joining them had long before almost vanished, had still up to that time cramped the entrances into the main thoroughfares.

A few years later John Howard, the philanthropist, came to inspect the Gaol and the Infirmary. In the Infirmary he only pointed out certain minor defects, which were soon remedied, but the Gaol he unhesitatingly condemned, so that it was soon pulled down and two new ones were erected, both in High Cross Street, one for the borough and one for the county. The stocking weaving trade continued to flourish, though hindered for a time by the hostile attitude of the weavers, who opposed any mechanical improvement; still by the end of the century 3000 frames were working in Leicester. At the beginning of the 19th century Leicester was able to boast of several living townsmen whose reputation had spread far beyond the limits of the place. One of these was a celebrated preacher, Robert Hall, a Baptist minister of such great oratorical power that we are told busy men would travel by coach all the way from London on a Saturday, returning again on Sunday, just to hear him preach in the out-of-the-way Harvey Lane Chapel. Another notable Baptist was Dr. Carey, who, from being a poor shoemaker in Leicester, became one of the first Orientalists, and one of the most successful of missionaries. He printed the four gospels in 26 languages, and was equally renowned for his saintship as for his learning. Carey Hall, a mission hall in Catherine Street, commemorates him.

A Leicester bookseller, Richard Phillips, did much at this time to advance the literary and scientific side of life, and he founded the Permanent Library, which still exists as a

flourishing institution. His radical opinions and his presuming to sell revolutionary treatises, however, caused him to suffer 18 months' imprisonment in Leicester Gaol. After this he went to London, where he rose to eminence and became Sir Richard Phillips, Sheriff of London.

It was a Leicester man, too, Mr. Wm. Gardiner, who first introduced the name and genius of Beethoven into England, a man of such culture, musical talent, and intelligence that he was known and esteemed far and wide. Miss Linwood must not be forgotten among Leicester's notable inhabitants of this epoch. Her needlework pictures made her celebrated throughout the whole of England, and there was a special exhibition of them in London. In 1842, Leicester, in common with many other places in England, was in a very disturbed condition from the great Chartists' Insurrection. On one occasion, when some 7000 or 8000 people had assembled in the Market Place, matters grew so threatening that it was found necessary to read the Riot Act and then disperse the mob by the aid of the Yeomanry. One of the chief Chartists, Thomas Cooper, was a native of Leicester and had a shop in Church Gate. The following year Queen Victoria and Prince Albert made a Royal Progress through the Midland Counties, and Leicester was one of the towns visited. They were received with great enthusiasm in spite of the fears of many officials, who had a low opinion of the loyalty of the town, owing to the prevalence there of Chartist ideas.

And here the historical summary of older Leicester may well end, for we now enter upon a new phase of the town's life, a phase in which the spirit of modern commercialism is the ruling factor, and responsible for a growth so rapid that it has far exceeded in 30 years the whole of that of the previous eighteen centuries.

MODERN AND COMMERCIAL LEICESTER.

LEICESTER is situated on the River Soar, and is 98 miles from London, 38 miles from Birmingham, and 27 miles from Nottingham. It has been represented in Parliament by two members ever since the reign of Edward I., but since the extension of the borough boundaries in 1891, the Parliamentary borough is less than the Municipal. At the present time the area of the borough is 8586 acres, and the population about 230,000 (Census 1901, 211,579). The town has increased enormously within the last 25 years, having more than doubled its size.

As a commercial town, Leicester owes much of its rapid growth and continued prosperity to the fact that it is not dependent on any one trade or undertaking, but has a number of widely different industries carried on within its boundaries. The chief of these are :— the manufacture of boots and shoes, hosiery, elastic webbing, tapestry for furnishing purposes, cigars, carriages and implements, and hats, while the spinning of yarn, the

dyeing of both wool and leather, and printing are also responsible for a considerable industrial element.

THE BOOT AND SHOE INDUSTRY

is probably the one which employs the greatest number of hands. It originated about 1860, a small beginning being made by a Mr. Crick a little before that date. Stead and Simpson's was the first firm to attempt it on a larger scale, introducing workmen from Stafford and Northampton and other places to teach the hands here. During the 40 years that have elapsed the trade has increased enormously, and now some 30,000 to 40,000 people are engaged in it. The chief class of work done is women's and children's shoes, men's being mostly made at Northampton. Cheap canvas shoes for seaside and home wear are also turned out by the thousand. Hitherto middle class goods have been those usually manufactured, but now the best class work is also undertaken. The threatened American invasion of the domain of this trade, two or three years ago, caused manufacturers to put forth their best work and efforts. In this they have been successful, and machinery of the most up-to-date description has been, and is still being,continually introduced into the factories to keep the trade ahead of the times. Those who have the privilege of entering into the works of some large firm will be amazed by machinery that seems to have all the adaptability of the human hand. Perhaps one of the machines that most strikes the casual

onlooker is that by which all the buttons are sewn on a boot in a minute ; the buttons are collected first in a cup out of which they run singly down a "race," and, placing themselves in the correct position on the boot, are immediately fixed in their due places. The eyeleting machine is equally wonderful to watch, as it puts all the eyelets on a boot in the most rapid succession—punching the leather, inserting the eyelet and fixing it in position in one operation.

Leicester is also a great distributing centre in the boot and shoe trade for the whole country, and various firms in the town control many hundreds of shops, one or more of which are established in every town of any size in Great Britain.

Moreover, the boot and shoe trade has brought in its train many subsidiary trades which rank high in the commercial life of the place. Thus there is the manufacture of laces (some of the best in England are made in Leicester), linings, blacking, and other accessories. Then, too, there are leather factors, leather dyers, and leather dressers, while other firms make it their business to supply tools, heel plates, and so on.

THE HOSIERY MANUFACTURE,

though not quite so large in point of the number of its employees, is undoubtedly the fundamental trade of Leicester. More than a century ago the historian Nichols said "the manufacture of hose has been the chief means of the prosperity of Leicester. It has diffused with a bountiful hand among the

inhabitants, riches and population." It began in 1680, when a man named Alsop started stocking-making near the North Gateway; he was for some time the only person of that trade in Leicester. The stocking frame had been invented by Mr. Lee nearly a century before this date, but there was a great prejudice against it for many years, and the fraternity of stocking weavers was not incorporated until 1663, in Charles II.'s reign. When it was first started in Leicester, so great was the hostility that frames were set up in cellars and other secret places, where they were worked by night as well as by day. In 1751 the trade in this town had so greatly increased that Leicester surpassed all other towns for quantity of goods made, though the quality was superior at Nottingham; while in 1792 we are told "the manufacture of stockings in the town and county of Leicester is the largest in the world; beside worsted woven hose, which are the staple article of the place, a great variety of cotton hose are now made which from their cheapness obtain a sale in this and most other countries." At this time there were 70 manufacturers, 3,000 frames, and 6,000 hands to a total population of 14,000 people. Stocking weavers earned 7/- to £1 per week; worsted spinners, 4d. to 8d. per day.

At the present day Leicester still maintains its superiority in all makes of hosiery, one firm alone employing more than 1800 hands. In addition to the ordinary trade in stockings and socks large army contracts are executed in the town. The fancy hosiery trade was

introduced in 1830 by Messrs. Kelly and R. Harris, and now woven underwear, tam o'shanters, and all kinds of woven goods are made. The jerseys so fashionable some twenty years ago, as well as the golf jerseys of to-day, are both of Leicester origin.

A new departure has been made of late years in several of the largest factories, namely, the production of the ready-made "blouse," not only the cheap varieties, but also the daintiest and most beautifully finished silk kinds being made by the hundred. In their production the latest resources of machinery are employed; thus many dozens of blouses of different materials are cut out at the same time, while "gatherings" and "gaugings" are done many rows at once; even buttons are sewn on by a machine.

ELASTIC WEB MANUFACTURE.

In the days of elastic side boots the elastic web manufacture was of great importance in the town, and though these have gone out of fashion there is still a considerable amount of elastic weaving for garters, suspenders, etc. A large export trade to all quarters of the globe is carried on; thus to China and Japan is sent gartering of special width and colouring, ornamented with ancient patterns, each of symbolic significance. A branch of this trade is the making of surgical ligatures which were originally a patent of a Leicester firm.

Another weaving trade carried on side by side with this is the production of strong tapestry for upholstering railway carriages,

waggonettes, etc. Here, again, there is a considerable trade with the East. Fishing lines are also made in the town, a waterproof fishing line being one of the latest novelties.

CIGARS.

The manufacture of cigars and cigarettes was begun in Leicester about 50 years ago by Ald. J. Stafford. It has now developed into a very flourishing industry, and become one of the staple trades of the town. Over twenty firms are engaged in it.

THE PRINTING TRADE

is another trade that has greatly developed, especially in the last ten years, and now some of the very best class work, such as coloured pictorial work, picture post cards of most artistic colouring, fine letterpress and well got up trade catalogues, is done in the town for customers from all parts of the country. One firm has been, for many years, engaged in the printing of coloured pattern catalogues of tiles, linoleums, and so forth, and many firms in all parts of England get their pattern books prepared in Leicester.

The journal of the trade—*The British Printer*—is produced and published in Leicester by Messrs. Raithby & Lawrence.

THE MAKING OF SCIENTIFIC INSTRUMENTS

is a new industry in Leicester, and is carried on by one firm in the town. This manufacture comprises three principal departments:—(1) Optical glass and lens making; (2) metal working for scientific instruments; (3) light

engineering and machine tool making. The interchangeable system of manufacture is employed throughout the works. The well-known Cooke lens is one of the products.

CARRIAGE BUILDING, MOTOR CAR AND BICYCLE MANUFACTURE,

and the manufacture of chemicals and the preparation of drugs also rank among the important trades. In addition to which there are many other minor industries.

THE CO-OPERATIVE MOVEMENT

is very strong in Leicester. Its boot and shoe works are the largest in the town, while other branches of industry are largely represented.

A WALK ROUND MODERN LEICESTER.

To see the chief thoroughfares and the principal modern buildings of interest the following walk is recommended :—

Starting out from the Midland Railway Station we are on the London Road, which, on the left, runs up a long hill to the chief suburb, Stoneygate; on the right, into the town. Turning then townwards we have immediately before us the large Wyvern Temperance Hotel, with shops on the ground floor. Built on the site of a Presbyterian Church, the conditions of the sale preclude the direct supplying of alcohol. A few steps further on bring us to the new

buildings of the Young Men's Christian Association on the left, which were opened in 1902 to accommodate the flourishing local branch, which numbers some 600 ordinary members. At the back of the building is the Association Hall, used for public meetings and entertainments and capable of seating 750 people.

The thoroughfare now changes its name to Granby Street. (A hundred years ago a considerable piece more of the London Road was called Granby Street). Shortly, on the left, we come to the Temperance Hall, the chief Public Hall, estimated to hold 1200 people, but, as it was built 50 years ago, it is now quite inadequate for a town of the size of Leicester. A little further on is the Grand Hotel, the latest and largest edition of the town's hotels. The King's Hall, a very fine and handsomely decorated room for balls and concerts, is part of it.

At this point the busy thoroughfare of Belvoir Street meets Granby Street.

Crossing Belvoir Street we have, at the corner, King's Restaurant. The next building of importance is the General Post Office, a red brick building with stone dressings at the corner of Bishop Street and Granby Street. Here we had better digress a little from the main thoroughfare, and, first noticing the handsome building of the London City and Midland Bank at the opposite corner, turn up Bishop Street into Town Hall Square.. The centre of the Square is planted with trees and shrubs and has a bronzed fountain in the middle, near which a

band plays in the summer months. Immediately opposite to us and occupying the whole of one side of the Square is the Town Hall, an imposing edifice with a lofty Clock Tower. In it are found the Law Courts, a well decorated Council Chamber, and the chief offices for the management of municipal affairs, while below in the basement are the Police Station and Police Cells. Its site used to be the old Sheep Market. The building was completed in 1876 at a total cost to the town of £52,000, exclusive of the site.

On the left of the Square in Bishop Street is the Liberal Club, while just beyond it, facing the Town Hall, and after the same style of architecture, is the new

MUNICIPAL LIBRARY.

It is built on a site provided by the Corporation, but the building itself is due to the generosity of Mr. Andrew Carnegie, who gave £12,000 towards it, and who opened the Library in person in May, 1905. On the ground floor it consists of a handsome Entrance Hall, a Lending Library, 100 feet long, and providing accommodation for 40,000 books, and a Reading Room, 80 feet long, where Newspapers and Magazines of all descriptions are provided for the use of the public. Upstairs is the Reference Library, which is arranged to hold 40,000 volumes of reference, and a Ladies' Room for Newspapers, Magazines, and Reference Books. Here, too, is the Librarian's Room. In the basement is a room for Patent Specifications in which 4,000 volumes

can be lodged, and here also is the Juvenile Lending Library and Reading Room. In all the rooms the fittings are of the latest and on the most approved plans. At the present time the Lending Library contains about 25,000 volumes and the Reference Department 16,000, so it is obvious that the new Library, providing space as it does for more than double that number of books, will meet the requirements of the town for many years to come. A large number of people daily make use of the Reading Room, while there are more than 15,000 borrowers of books who take out annually nearly half a million altogether. No less than 25,000 works are consulted every year in the Reference Department.

(Branches of the Municipal Library, together with Reading Rooms, are situated in Garendon Street (8000 vols.), Westcotes Branch on the Narborough Road (7,000 vols.), Cossington Street, Belgrave (5,000 vols.), Richmond Road, Aylestone (3,600 vols.), Clarendon Park Road (4,000 vols.), and Woodgate (3,100 vols.), so that the Town is exceptionally well supplied with libraries and facilities for Reference).

Walking across the Square, by the front of the Town Hall, we come on the opposite side to the old Theatre Royal, erected in 1835 on the site of a still older playhouse of which the father of the great Macready was once Manager. Here Macready, Charles Keen, Charles Matthews, Helen Faucit, Toole, Henry Irving, and others, all played to Leicester audiences in past days.

Turning to the right to get back to Granby Street we pass, on the right hand, the National Provincial Bank at the corner of Granby Street. It stands on the site of the old "Three Crowns," which was, indeed, pulled down to make way for it. The "Three Crowns" was built in 1726, and was so called from the recent union of the Crown of Hanover with those of England and Scotland in the person of King George the First. It was there that the Corporation held their luncheon to celebrate the victory of Culloden, and there, too, in 1774, that the ancient Town Gates were sold by auction in four lots.

The main road is now called Gallowtree Gate, and we continue down it towards the Clock Tower, which can be seen in the distance, noticing an entrance into the Market Place on the left. Just before we come to the Clock Tower is the Permanent Library, occupying part of the Stamford and Spalding Bank premises. This library is a very old institution of the town, as it was founded in 1789 by a Mr. Phillips, "who originated a Literary Society in order to make it the centre of a permanent Library." He was a Leicester bookseller who, though he spent 18 months in Leicester Gaol for his radical opinions and for selling Payne's "Rights of Man," yet eventually rose to Knighthood and the position of Sheriff of London. The Library now contains about 20,000 vols. and has reading rooms with a good supply of papers and magazines.

The "Church House" and the headquarters

of the Leicester Medical Society are in the building.

Almost opposite the Permanent Library are the offices of Thomas Cook & Son, the well-known excursion agents. Mr. Thomas Cook resided most of his life in Leicester, where he started, and in its early days carried on the excursion business. These offices are worth attention because they have recently been built, not merely to meet local requirements, but to serve in some sort as a record in the home of its birth of this modern system of travel. The facade is in Renaissance style, built entirely of buff terra cotta and glazed faïence, and has depicted upon it the various stages in travelling facilities experienced during the evolution of popular travelling. One of the panels bears this inscription, "Erected A.D. 1894, by John Mason Cook, to commemorate the origin of the excursion system of the world by Thomas Cook's special train from Leicester to Loughborough, July 15th, 1841." This was the first publicly advertised excursion known in the history of railway traffic. It carried 670 passengers at 1/- a head.

THE CLOCK TOWER

is now the centre of modern Leicester, though this spot was outside the walls of the old town. The five chief thoroughfares radiate from it, namely, Gallowtree Gate, Humberstone Gate, Belgrave Gate, Church Gate, and East Gates (leading to High Street). The site is known as the Haymarket, though the haymarket was removed into the bottom end of Humberstone Gate some years ago,

while a few of the older inhabitants at times even refer to it as "Coal Hill," because it was here that, many years ago, mules and asses which came in from the county collieries laden with coal were unloaded and their burdens sold.

THE Clock Tower is a memorial built in 1868 by subscriptions, aided by a grant from the Town Council, to four of Leicester's chief benefactors, namely :—Simon de Montfort, Earl of Leicester (whose connection with the town has already been given on page 6) ; William of Wyggeston, a rich wool merchant, who founded and endowed a hospital for 24 old people (see page 50)—some of the endowment, which had greatly increased in value with time, has built and endowed the Wyggeston Schools (see page 49); Sir Thomas White, Lord Mayor of London in 1546, who left a fund for granting loans without interest to young freemen of the borough desiring to start in life; and Alderman Gabriel Newton, who founded the school that still goes by his name (see page 43).

Humberstone Gate on the right is the widest of the thoroughfares, and has in it the old Bell Hotel, dating from the middle of the 18th century. Beyond the Hotel stands the Wyggeston Girls' School (see page 51). The Secular Hall, the home of Leicester Free Thought, is opposite. On the strip of ground known as No Man's Land, on the right hand side, the Pleasure Fair has been held in May and October for many years, but it has just been

abolished, as it greatly hindered traffic and business. Returning to the Clock Tower, we find, a few yards down Belgrave Gate, the Palace, the largest Music Hall in the town. It is a fine building, well appointed within, and has two performances every night.

The road running through Belgrave and terminating in Belgrave Gate at the Clock Tower owes its existence as a main entrance into the town from one of the visitations of the Plague. The original road from the North turned off at the bottom of Birstall Hill, some two miles from the Clock Tower, and, passing the Abbey, entered the town by the North Gate, and emerged again at the South Gate. But fear of the Plague led travellers to take a side road by Belgrave as a preferable alternative, as by so doing they could thus pass by the old town, bounded by its four walls, without actually entering it on their way to the South or the North. Hence it came into general use.

Passing next into East Gates, we have on the right the handsome new building of Lloyd's Bank, and on the left—a stone's throw away up Silver Street—the Opera House, built in 1877 and computed to hold 2,550 people. We then enter

THE MARKET PLACE,

in the centre of which stands a now gilt, but originally bronze, statue of a former Duke of Rutland. It was given by public subscription to commemorate the 50th year of his lieutenancy of the county, and was at first placed near the Victoria Parade, but being in the

THE MARKET PLACE.

THE NEW WALK AND MUSEUM.

way of traffic was later removed to its present position. The Market Hall is behind the statue. Its upper storey, reached by an exterior staircase, is the Corn Exchange. This method of erection is due to the fact that the Market Hall was first built and the Corn Exchange added later. On Saturdays the whole Market Place is covered with stalls, at which every conceivable article may be bought, from curtains to old iron, from beefsteak to choice flowers. The scene after dark on a Saturday evening is very picturesque and well worth a visit. There is a particularly good vegetable and flower market. A smaller market is held on Wednesdays.

Passing out of the Market Place by the Fish Market on the left we come to the County Assembly Rooms, where the chief festivities of Leicester have been held for a century past. This building was originally intended for an hotel (hence the street is called Hotel Street), but never used as such. It was built in 1800 on the site of a well-known cock pit and first used for the annual race ball, the great feature then of town and county gaiety. The Judge has lodged here at Assize times since 1825. Turning on the left, and keeping along Hotel Street for a few yards, we cross over Horsefair Street, noticing the fine offices of the Corporation Gas and Electric Light Department on the right, and catch beyond them a glimpse of the Constitutional Club, at the corner of Pocklington's Walk. We are now in Market Street, which is largely given up to Drapers and Milliners. At the top of Market Street four diverging roads

face us. The right central one, with Holy Trinity Church across the top, is King Street, and walking a few yards up here we come to the

NEW WALK,

a most pleasant walk under an avenue of trees which runs from the Welford Place in the heart of the town up to the Victoria Park, a distance of three-quarters of a mile. It was laid out in 1785 as a promenade for the recreation of the inhabitants and planted with elms and other trees. One of the most interesting facts about it is that as we pass along it we are actually on the old Roman Road—the Via Devana—which ran by Stretton and Stoughton and entered Leicester through the Roman South Gate near Wickliffe Street. A walk of a few minutes under the trees brings us on the right to

THE MUSEUM.

The building was originally the old Proprietary School, but was bought by the Corporation in 1848 for a Museum, Leicester being one of the first boroughs to avail itself of the powers conferred by Act of Parliament upon Municipal bodies to establish and maintain Museums. The contents of the private Museum of the Literary and Philosophical Society were formally transferred to it, to be held in trust for the town by the Corporation, and it was opened in 1849. For many years little was done to extend it, but in 1880 the late Curator was appointed, and since that date it has largely developed in all directions, particularly on the Natural

History side. Certain of the improvements and treatments are inventions of the late Curator, and are now generally adopted in other large Museums. In the Zoological Room upstairs phases of animal life are represented pictorially, but nevertheless with strict regard to classification. A startling group of two tigers fighting over a dead elephant arrests our attention on entering. To set up this casts were taken of the dead bodies of the animals and models made in paper, over which the skins were drawn like a glove. Noticeable also are scenes from bird life, with their clever realistic setting. Much of this setting, such as the cowhouse and chimney stack and slates in the swallow and starling groups, is modelled in paper pulp so successfully as to be indistinguishable from natural objects.

In this room, too, is a series of skulls, ranging from fishes to man, coloured to define the limits of the various bones comprising them, and in which the corresponding bones are coloured alike throughout. Man, monkey, bear, tiger, lion, giraffe, horse, manatee, whale and kangaroo are some of the skulls so treated. Whole skeletons of birds are also exhibited and have every bone labelled, so that a student of comparative anatomy would find much to help him here.

In the upper room the Bickley collection of 74 cases of birds, arranged in the old fashioned manner, and bequeathed by the late Mr. Bickley, of Melton Mowbray, is displayed. The little spiral staircase out of it leads down to the Geological Room with its fine collec-

tion of minerals, and through that the annex is reached, which is full of local interest. Here, among other Roman remains, is the famous Milliare or Milestone, the oldest stone inscription known in Great Britain. It was found in 1771 two miles from Leicester on the Thurmaston Road, and was for a time placed on a pedestal in Belgrave Gate—to its great detriment. In 1844 it was placed in the Museum. The Latin inscription may be translated thus :—"To the Emperor and Cæsar the august Trajan Hadrian, son of the divine Trajan surnamed Particus, grandson of the divine Nerva Pontifex Maximus, four times invested with tribunal power, thrice Consul. From Ratae 2 miles"—thus recalling the visit of the great Hadrian to this country in A.D. 120, about which time it was doubtless erected. Specimens of beautiful Roman pavements found in Leicester, and witnessing to its importance as a Roman station, are also shown here, and various stone and leaden coffins of great antiquity. Contrasting with them are an interesting series of railway rails of different kinds.

In the adjoining Invertebrate Room is a fine series of fossils and also one of invertibrates. In both the real objects are largely supplemented by models made in a special preparation of paper, and so cleverly coloured that they defy detection.

Some models of fish, too, are marvellous reproductions, as for instance, the thornback ray, and the pike in a basket. Indeed the excellent models that are introduced to fill up gaps where the

actual objects themselves are either not obtainable or are not capable of preservation, are a great feature of this Museum. It is also asserted that the idea of using modelled foliage and flowers in grouping originated in Leicester, for probably the first group embodying both birds and flowers in natural relations was exhibited here in 1877 and afterwards sent to the Natural History Museum, Kensington. And it may be said of all plant life introduced into these groups that there is nothing of the "millinery department" about it, for every flower and every leaf is botanically exact in all details.

In the third large downstairs room are a number of local antiquities—a very fine Celtic cinery urn and an Anglo-Saxon bronze bucket found in a well at Mountsorrel; a large collection of Roman pottery, including an interesting fragment of Samian pottery with a hole in it, so that it could be suspended round the neck, and with an inscription upon it saying it was the token or gift of Lucius the Gladiator to Verecunda Lydia; a well preserved balance of bronze, and a valuable and perfect two-handled glass vessel that contained human bones; and many other objects. A collection of some fine swords, well displayed, should not be passed over.

Adjoining the Museum is the

ART GALLERY,

housed in the large lecture room which the Literary and Philosophical Society makes its head quarters, and in two smaller rooms leading out of it. A permanent Art Gallery was

first established in the town in 1881, by private effort, and was supported for four years by private donations. Since then it has been in the charge of the Corporation. Various bequests have enabled many valuable pictures to be acquired, and the collection has been further enhanced by gifts from various other sources. Notable pictures at present in the collection are :—"Washington Irving," by Sir David Wilkie, R.A., "Orlando pursuing the Fata Morgana," given by the artist G. F. Watts, R.A., "A Whip for Van Tromp," by Seymour Lucas, A.R.A., "Highland Pastures," by Peter Graham, R.A., "Welsh Landscape," by David Cox, "St. Paul's," by H. Dawson, "The Water Wheels of Savassa," by Henry Woods, and amongst the latest acquisitions are "The Captain's Birthday," by Edwin Ellis, and "Little Cornish Fishermen," by John Reid, R.I. There are other pictures by notable artists, among which two pictures of Venice by Turner are specially conspicuous. A collection of objects of vertu lent by the authorities of South Kensington are arranged in one of the smaller rooms, as are some interesting bronzes lately acquired.

In the grounds of the Museum is an ornamental pillar erected to the memory of James Francis Hollings, a barrister by profession, and once Mayor of Leicester. He was an enthusiastic supporter of all local intellectual movements, and did much to bring about the establishment of the Town Museum. The beautiful iron gates set up in front of the Museum are early 17th century work. Originally at Quenby Hall, in the county, they

were later presented to the Infirmary. On alterations to that building they were removed to their present position.

On leaving the Art Gallery we are in Waterloo Street, and if we turn to the left and go down it we should be, in two minutes, on the London Road, opposite the Midland Railway Station, having been a complete round, but if, instead of turning here, we cross the street and keep on our way up the New Walk we are almost immediately in De Montfort Square. Shortly De Montfort Street crosses the New Walk, and we turn aside a step or two to look at the statue of Dr. Robert Hall, the eminent Baptist minister who, 100 years ago, thrilled the hearts of his hearers by his eloquent discourses in Harvey Lane Chapel (see page 17). At the corner the Young Women's Christian Association has installed itself. Opposite is St. Stephen's Presbyterian Church. The next division of the New Walk is called the Oval, from the shape of the grass enclosure in its centre. Then follows Victoria Road, with its Free Church, and the last part of the promenade which, by a gentle ascent, brings us to the

VICTORIA PARK

(See page 99). On the left by the main gates of the Park we are once more on the chief thoroughfare and line of trams—the

LONDON ROAD.

Standing at this spot, and looking down the hill, one sees the town lying in a hollow, while over the town on an ordinarily clear day the

hills and trees of Charnwood Forest can be plainly made out. On this London Road hill in the olden days stood the gallows tree, and hence the lower part of this road in the town is known as Gallowtree (or sometimes Galtree Gate) and the hill itself was known as Gallowtree Hill—a name it has, however, long lost. Though this is now a main road to London, yet it has not always been such. In early days the principal road from London to the North, passing through Leicester, was the present Welford Road, which entered the town at the Southgate, its line being continued down Highcross Street, Northgates, and over the North Bridge out of the town again. And along this road all the chief travelling was done. A map drawn by Speed in 1600 shows this, and this alone, as the "London Waye." When and why the other road superseded it is not quite evident, but a map drawn in 1722 marks it as "The London Road by Harborrow," and does not mention the other. It is generally believed that in one of the visitations of the plague at the beginning of the 17th century people left off using the older road for fear of infection, and took this one as being less frequented. and by which, moreover, they could avoid actually entering the town, as it ran along, but outside, the East wall. Still, both roads continued in use, being distinguished respectively as "The London Road by Wellingborough" and "The London Road by Harborough," for in 1771 we find the site of the Infirmary described as "upon the London Road leading to Wellingborough."

The spot where we are standing by the main gates of the Victoria Park has many historical associations. It was the scene of a sanguinary fight between the Anglo-Saxons and their foes—whether Danes, as some think, or Normans, as others conjecture, we cannot now tell, but fifty years ago when the crown of the hill was being lowered to facilitate traffic a large number of skeletons—between one and two hundred—were found buried together at this spot, not far below the surface. And among the bones were Saxon ornaments of various kinds, which gave some clue, at least, to the men who lay there. Here, too, some centuries later, the burgesses of the town were hastily summoned to meet at dawn of day "on the Gallowtree Hill on the road leading from Market Harborough," fully armed, to oppose an angry mob that was threatening to descend upon the town and destroy the Castle of their Earl, the great John of Gaunt. But though 12,000 armed men waited anxiously for a couple of days the expected attack never came and the alarm cooled down. Centuries later, again, armed men in headlong flight were hurrying down Gallowtree Hill with a King among them, for along this road Charles I. and his troops fled after their defeat at the battle of Naseby.

The road exactly opposite the Park Gates is the Evington Road, leading to Evington village, some two miles away. If time permit a walk across the Victoria Park, keeping parallel to the London Road, will bring us to Stoneygate, Leicester's chief and very

pleasant residential suburb (or the tram runs another mile and a half through it). If time or inclination do not permit of this extension, then turn to the left down the hill, and ten minutes' easy walking brings us back to the Midland Railway Station, whence we started.

A WALK ROUND ANCIENT LEICESTER AND SOME MODERN BUILDINGS.

STARTING from the Market Place for this, perhaps the most interesting walk in the town, we first face the Market Hall, and, keeping it on the left, leave the Market Place at the top right hand corner. On reaching Hotel Street, turn to the right and then immediately to the left and we are by Parr's Bank—recently erected and probably the finest modern building Leicester possesses. It well repays inspection from various positions. The building is in the Renaissance style ; the two sculptured panels representing Commerce and Agriculture, high up on either side of the entrance, should not be passed over. Commerce is represented with her offspring, Peace and Enlightenment ; on her left the East brings foodstuffs and raw materials, on her right come Crafts and Manufactures, to whom Commerce offers the horn of plenty. Agriculture is surrounded by figures typifying corn-harvest, sheep raising, fruit growing and dairy farming. The decorations within are worthy of the exterior. Continuing straight along Peacock Lane, we

first pass the North Midland School of Cookery on our right, and almost immediately opposite is

ALDERMAN NEWTON'S SCHOOL

for boys, which was founded about 1760 by Gabriel Newton, an Alderman of the town, the original building being on the East side of St. Nicholas' Churchyard on the site of the old "Shambles." Alderman Newton was the son of reputable parents in Leicester, and was brought up to the wool combing, but later he became master of the "Horse and Trumpet" in Highcross Street. (Its sign-board swung across the Street and was attached to the High Cross itself). Becoming possessed of considerable wealth, chiefly through marriage (he had three wives), he retired and "lived in the line and character of a gentleman," and was Mayor in 1733. He was a man of strong character, with well-marked likes and dislikes, which made him many enemies, but strict, upright and generous. Throsby, the historian, remarks, "His temper might not be even at the decline of life, but those who had neither ability nor inclination to do good might have humoured his inclinations without the least injury to themselves." How he came to take an interest in the boys of the town is told on a pathetic tablet in St. Martin's Church, commemorating the death of his only son, George, at the age of 18, "to whose memory his affectionate father erected this monument and with a pious intention clothed 35 poor boys and put them out to trades at his own

expense ; and settled £3,250 by his last will for a perpetual support of the charity, and for carefully instructing them in toning and psalmody, which you may see more pathetically described, 2 Chronicles V., 13, and for educating them rightly in the principles of our most holy and divine religion for, as Denham says—

> 'All human wisdom to divine is folly,
> This truth the wisest man made melancholy,
> That man's the greatest monster without doubt
> Who is a wolf within and sheep without.'"

He took the greatest interest in the boys of his school, and had several quarrels with various vicars because they would not assign to his scholars the places in church he wished. From the peculiar clothing of the boys—a bright green coat with scarlet facings and brass buttons, leather breeches and a round black cap with red buttons—it became commonly called the Greencoat School. This dress was only discarded in 1883. Early in the 19th century the school was enlarged to accommodate 300 boys, and opened as a Higher Grade School. It again needed enlarging in 1897, and at the present time 385 boys (120 being free scholars) are on the books and it is a recognised Secondary School under the Board of Education.

There are excellent physical and chemical laboratories and workshops. This school holds the championship of the Midlands for swimming. Continuing, on the right hand side of the road is

ST. MARTIN'S CHURCH.

Tradition asserts that this church stands

on the site of a heathen temple dedicated to Diana. Confirmation of this was obtained in 1784, when in digging a grave between nave and chancel a large quantity of cattle bones—presumably sacrificial—were found about five feet below the surface; and again, quite lately, in the course of restoration more have been discovered in about the same situation. A Saxon church stood here at the time of the Conquest, but all remains of this building have disappeared except the string course at the east end of the north aisle. The present church is chiefly Early English, though the chancel is later Perpendicular, 1409. The great south aisle was added about the close of the 13th century, as a chapel for the use of the Corpus Christi Guild—the largest and wealthiest guild in the town—and four priests were maintained at the expense of the guild, to pray there for the souls of the members.

Entering the church at the south door, the Vaughan porch calls first for notice. This was erected in 1897 in memory of the Vaughan family, who for nearly a century have been connected with the church, Edward Vaughan and his three sons, Charles, Edward, and David, being successively vicars from 1802 to 1893. At the buttresses are the statues of the four saints specially associated with the church, namely:—St. Martin, St. George, St. Dunstan and St. Catherine. The seven statues along the front give the epitome of the ecclesiastical history of Leicester. St. Guthlac, who introduced

Christianity to the Midlands; St. Hugh, Bishop of Lincoln; Bishop Grosstete, the writer, tutor of Simon de Montfort and Archdeacon of Leicester; the 3rd Earl of Huntingdon, a zealous Puritan; William Chillingworth, a master of Wyggeston's Hospital in 1638, "a bright ornament to Christianity," Archbishop Laud's most celebrated convert from Rome, and a noted philosopher and orator; and Archbishop Magee, once Bishop of Peterborough, who had much to do with Leicester.

At the left on entering the Church (the west end of the south aisle) is Regimental Corner, where hang the tattered flags of the Leicestershire Regiment, and in which are memorials to those of the regiment who have died in warfare. This corner was formerly the chapel of St. George, associated with the religious Guild of St. George, and by its altar stood, on a raised platform, a life-sized figure of the Saint clad in gorgeous armour on horse back. Once a year this was the central figure in the great procession known as the "Riding of the George," when, accompanied by the Dragon and other characters, it was drawn round the town on a wheeled stage to the delight of both town and county people who made the day a merry holiday. After the Reformation the figure disappeared, and though we know from the churchwardens' accounts that the horse was sold for 12d., the fate of St. George himself is unknown. The great south aisle—the religious head-quarters of the Corpus Christi Guild—has sedilia for priest, deacon and sub-deacon, as

has the chancel. It became known in the 15th century as the Lady Chapel. This guild, like the Guild of St. George, had its annual religious procession of priests, acolytes, and members bearing images, banners and flags, the Thursday after Trinity Sunday being always the chosen day. After the Reformation its altar was removed and the east end of the chapel has long been used for the transaction of ecclesiastical business, and is known as the Consistory or Archdeacon's Court. A table and seats are provided for the purpose.

The small chapel to the south of the chancel where the second altar now stands was the Chapel of St. Dunstan, but it is usually referred to at the present time as the Nedham Chapel, because it has been lately restored as a memorial to that family. On the opposite side of the chancel is the Heyrick Chapel, containing many tombstones to members of the Heyrick family, who played a large part in town affairs about the 16th and 17th centuries—ancestors of the Herricks of Beaumanor. One tombstone records the startling fact that a certain John Heyricke lived with his wife "in one house full 52 years and in all that tyme never buried man, woman, nor child, though they were sometimes twenty in household," and it further adds that when his wife died in 1611 at the age of 97 years "she did see before her departure, of her children, and children's children, and their children to the number of 142." This chapel was, in pre-Reformation days the Chapel of St. Catherine, and over

its altar was a large painting of St. Catherine. Later it contained the Earl of Huntingdon's pew. There was also another chapel, situation now unknown, which was perhaps the most important of all, the Rood Chapel, so called from the large Cross or Rood, which often gave the church the name of St. Crosse in mediæval times. The offerings at the foot of this Cross were at times employed for town affairs. Thus they formed a considerable part of the payment for the rebuilding of the West Bridge in 1290.

After the Reformation the church was stripped of all its altars, alabaster images, brasswork, organ, etc., everything of beauty being removed, and we have still the churchwardens' account of every detail of their sale. A Miracle play, the last in Leicester, was performed here in 1551, and witnessed by the Mayor and his Brethren. The year following we find Hugh Latimer of Thurcaston preaching in the church on one of his protestant missionary journeys. Charles I. attended service at St. Martin's on, at least, two occasions, and the chair in which he is supposed to have sat is still shown in the Old Town Library. Before leaving the Church notice the monument to Throsby, the Historian of Leicester, over the vestry door, also the tablet to George Newton (already referred to) on the S.E. wall, and one to Abigail Swift, mother of Dean Swift. In the churchyard just by the Vaughan porch is a tombstone lying in a semi-upright position with this remarkable inscription upon it—

"Enquiring mortal, who'er thou art, ponder

ST. MARTIN'S CHURCH.

ST. NICHOLAS' CHURCH.

here on an incident which highly concerns the whole progeny of Adam. Near this place lieth the body of John Fenton, who fell by violence May 17th, 1778, and remains a sad example of the incompetency of judicial institutions to punish a murderer! He left to mourn his untimely fate, a mother, a widow, and two children. These, but not these alone, are greatly injured; personal security received a mortal wound when vengeance was averted from his assassin by the sophistical refiners of natural justice." Fenton was killed in his own house byFrancois Soulés, a French officer and prisoner of war domiciled in Leicester, after a quarrel over billiards. Soulés was at first condemned to death, but afterwards acquitted. The inscription gave great offence and was ordered to be removed, but the order was never carried out.

The porch at the north door is remarkable for its beautiful fan-tracery of wood. St. Martin's Church has always been the church chiefly associated with the burgesses of the town. St. Mary's was the church of the Earls and aristocracy, St. Martin's tended to be the church favoured by the democracy, and hence grew up its association with the municipal life of the town. So that any town function is still held there, and it is to this church that the judge goes in state when he comes to hold the Assizes.

Just beyond the church is a large red brick building,

THE WYGGESTON BOYS' SCHOOL,

which owes its existence to the generosity

and piety of William Wyggeston, a rich townsman, at the beginning of the 16th century. His father lived in Friar Lane, paying rent to the Corpus Christi Guild for his house. The Wyggeston family were highly respected and old established. William was a religious man, and in 1512 founded a chantry for two priests to serve at the altar of St. Ursula and St. Katherine in the Collegiate Church of St. Mary in the Newark (not the St. Mary of the Castle Church), where mass might "for ever be said for the good estate of the said William Wigston during his life, and for his soul perpetually after his death." Later on he extended his charitable scheme and also founded and endowed a Hospital for twelve poor men and twelve poor women, with chaplain and confrater—"Considering and calling to mind that the flower of my life is past in earthly enjoyments and cares, and desiring to offer an evening sacrifice to the Most High," as he says piously in his deed of foundation.

The Hospital was built where the school now stands, and finished in 1520. though he did not live to see it completed, and in it the twenty-four old people lived until 1869, when a handsome new building was provided for them on the Hinckley Road, on the outskirts of the town. Notice that a corner of the playground by Peacock's Lane is railed off. This was the site of the old chapel, and when the Hospital buildings were taken down in 1875, the consecrated portion of the ground was enclosed, and a stone slab in the centre recalls the fact that the bodies of various

chaplains and inmates lie beneath. Their monuments have been removed to the chapel of the new Hospital. Other parts out of the chapel were placed either in St. Nicholas' Church or in the Chapel of Trinity Hospital.

During the course of $3\frac{1}{2}$ centuries the endowment of William Wyggeston increased enormously in value, and so, after providing for the twenty-four old people as stipulated, the remainder of the money, by a scheme of the Endowed Schools' Commission in 1872, went towards founding higher grade schools for boys and girls, the present Wyggeston Boys and Girls' Schools (the Girls' School is in Humberstone Gate). Their endowment consists of £2,000 a year out of the charity. The Boys' School was opened in 1877, and has about 500 pupils; The Girls' School was opened in 1877, and has about 400 pupils. Large numbers of exhibitions which enable pupils from the elementary schools of the town to enter the Wyggeston Schools have been provided by a legacy of £500 a year left for the purpose by the late Mr. Joseph Pool. There are also various "leaving scholarships," tenable at universities or other places of higher education—hence there is ample opportunity in Leicester for any pupil in an elementary school to ascend the educational ladder to its highest rungs. In fact this has already been accomplished by several pupils. Between the boys' playground and St. Martin's Churchyard is a narrow passage leading to Town Hall Lane, and passing along it we come, before leaving it, to the

OLD TOWN LIBRARY,

on the left. This old building is supposed to have been part of the Chantry House of the priests of the Corpus Christi Guild, who served in the Lady Chapel at St. Martin's. The library is free, and we pass upstairs into two (originally all one) oak panelled rooms. A board on the partition between the rooms tells us that "this Library was built in the year 1632 at the expense of the Corporation of Leicester, upon the motion of the Right Rev. Father in God, Lord Bishop of Lincoln, and by the Promotion of Mr. John Angell, public Lecturer of the Borough." It was beautified in the year 1736 and again in 1773. In spite of this assertion it is probable that the building was not erected then, but merely adapted from the Chantry House, as already stated. The nucleus of the Library was originally in St. Martin's Church, being books given by Henry Earl of Huntingdon, Simon Craftes, and others. These were removed to the present building at the instance of John Williams, Bishop of Lincoln, whose letter on the subject is preserved in the Borough Records. Bishop Williams, who was one of the great book-lovers of his time, gave £10 towards the purchase of books, and wrote to the then Earl of Huntingdon, and to an official of the diocese, to urge contributions from the gentry and clergy of the county. His efforts and those of Mr. Angell, Confrater of Wyggeston's Hospital as well as public lecturer, roused much enthusiasm in the establishment of the Library, and we have a long list of benefactors who gave money and

books towards it. About 12 years later, under the will of Thomas Hague, a native of Leicestershire, and a Master at Christ's Hospital, the Library became possessed of some hundreds of valuable additions, including the Codex Leicestrensis. In the middle of the 18th century it had fallen into neglect and a long period elapsed without the addition of a single book. Moreover, many of the books were either lost or mutilated, and indeed it is only within the last few years that the more valuable have been placed in glass cases out of the reach of the careless. About 100 books, many of them valuable, which are named in the catalogue of 1669, are now missing. The books now in the Library are of interest rather to the book-lover in a special sense than to the general student or reader. They comprise Theology (both the Early Fathers and the Reformation period), the Classics, Medical Works, chiefly of the 17th century, and not a few quaint and comparatively rare tracts and sermons. Several of the books bear autographs, including those of Ben Jonson, with the motto "Tanquam explorator," Henry Earl of Huntingdon, John Angell, and Thomas Hague. There are also a few MSS., but these, with the Codex Leicestrensis, are now preserved in the Muniment Room at the Town Hall. The first room contains a curious chair, the original use of which is very uncertain, and also the chair said to have been provided for King Charles I., when he attended divine service in St. Martin's, before the war broke out, on his mission to

revive the doubtful loyalty of the inhabitants of this town.

Open daily, free, from 10 a.m. to 4 p.m., Thursday excepted, on which day it is open from 6 to 9 p.m. only.

Round the corner in Town Hall Lane is the entrance to

THE OLD TOWN HALL,

one of the most interesting old buildings in Leicester. A tablet over the entrance tells that it was originally the hall of the Corpus Christi Guild. When that guild was broken up after the Reformation the hall was sold first to a private owner—one, John Pickerell—and then in 1563 to the town for use as a Town Hall, and as such it was used until the present Town Hall replaced it in 1871. The original Corpus Christi Hall was rather small, so when the Corporation bought it, it was lengthened at the High Cross Street, or west end, and redecorated. Many picturesque scenes have been enacted in the old hall—the defeat of the Spanish Armada in 1588 was celebrated by a banquet there, as were other notable occasions, and at these times the Town Waits (the Mayor's Official Minstrels) sat in the east gallery and enlivened the proceedings with their strains. Strolling players, too, frequently performed in it on gala days, and tradition is strong in asserting that even the immortal Shakespeare himself was one of these performers. Certainly, the Earl of Leicester's company, of which he was a member, often played there, so that there is good ground for the statement.

Richard Burbage, the great actor and original representative of Shakespeare's Richard III., is known to have acted in the old hall. In 1544 the scholars of the Grammar School acted a play here under the supervision of the head master, and were paid 5/- for it from the borough accounts. Other records exist, too, of performances in which trained animals played the chief parts, and there were great doings within its walls when the Peace of Fontainbleau was signed with France in 1763. An elaborate luncheon was served to the Mayor and Corporation, resplendent in their robes. An Ode to Peace was performed, and a grand procession of symbolic personages after the manner of a mediæval pageant, wended its way after luncheon from the Hall, round the town and back to the Exchange in the Market Place.

At the west end of the hall can be seen the Mayor's seat, and above it is the date, 1586, and the initials of Queen Elizabeth, which is probably when the hall was enlarged; at the east end is the Minstrels' Gallery. Through the court yard and adjacent to the old Town Hall is the picturesque

MAYOR'S PARLOUR,

built about 1637. The Jacobean mantelpiece is richly carved bog-oak, for which we are told the carvers were paid £5 16s. 6d., the gilders £2 10s. 0d., and the joiners and wood sellers £4 13s. 6d.

It was in this parlour that the Mayor and Corporation held anxious deliberations during the Siege of Leicester, and in the wall opposite

to the window is the curious Mayor's chair in which Prince Rupert sat when he had taken the town. The stained glass in the window is interesting. Some of it evidently dates from the time of the Corpus Christi Guild, as several of the panes bear the device of the Guild, the Corpus Christi Cup. Originally there were a series of lights representing the twelve months of the year, but these are now imperfect and disarranged—for instance, September, a man with a flail, may be discovered upside down. A little piece of pink glass bearing the letter P is said to have come from the ancient Church of St. Peter. By the side of the fireplace a door leads into a small room having a grated window looking into a detached part of the burial ground of St. Martin's Church. This was for many years the Muniment Room of the Borough of Leicester, and in it lay the valuable charters, title deeds, chamberlain's accounts, and hall papers belonging to the Corporation in a state of great disorder and neglect. At the opening of the New Town Hall in 1876, the records were removed to a fireproof muniment room in that building.

To the right of the entrance into the Mayor's Parlour is a small cell which for years was the Municipal cell into which "drunks and disorderlies" were put to await trial before the Magistrates next morning in the Town Hall. The cell used to be a good deal smaller than it is at present, and there is a tradition in the Society of Friends that several "Friends or Quakers" were kept there during the whole of one night—a sort of miniature Black Hole

of Calcutta. This would probably be during the persecution of the sect (about 1622); George Fox, who was born in Leicestershire, and other friends were tried at the Sessions in the Old Town Hall, but they were brought from the Old Gaol in High Cross Street for the purpose. Until recently the Old Town Hall had been used for some years as a cookery school, and this cell then did duty as a larder!

On leaving the Old Town Hall and turning to the left we are immediately in High Cross Street, the main thoroughfare of the mediæval town, though now the business of the town has largely moved somewhat eastward. Round this street the principal life of the burgesses centred, and in it were situated the chief dwellings and inns. An interesting memorial of them is found in the old Wyggeston House, opposite the Wyggeston Boys' School, as parts of it were formerly the Chantry House of the four priests of St. Martin's—the Chantry being established in the reign of Edward III. A range of old windows, in which some of the old stained glass still remains, is specially to be noted. The remainder of the glass is in the possession of the local Archæological Society; it is very valuable as illustrating costume, ritual, and manners 400 years ago, and there is some talk of setting it up again in its proper place.

In this street the market on Wednesdays was held from time immemorial until 24 years ago (1883), when it was removed to the same situation as the Saturday market—the Market Place. Just below the intersection of the

present High Street was the High Cross, the recognised centre of the town since Roman days, and probably the site of the Roman forum. The High Cross was rebuilt in Queen Elizabeth's reign, at the cost of nearly £100, and took the form of a small Market Hall with open sides and roof supported upon pillars. This remained until 1769, when it was taken down as the business of the town increased and it was found an obstruction to the traffic. One pillar alone, with an iron cross on its summit and steps at its base, was re-erected, and was the High Cross known to modern times. In 1836 even this was found in the way, so it was removed and sold to a Mr. James Rawson, who placed it in front of the Crescent in King Street, where it may be seen to this day. Its old site is marked in the pavement of High Cross Street by a circle of stones surrounding a cross.

Close here are the Almshouses known as St. John's and Bent's Hospital. St. John's Hospital is a charitable endowment of great antiquity, but neither the date nor the name of the founder is known. We first read of it in Richard Basset's Charter to St. John's Hospital, dated 1200. At the Reformation, it, with other guilds and colleges, was forfeited and destroyed, but, later, Queen Elizabeth granted some of its property to the Corporation, who adapted the old buildings for a Wool Hall. This was not successful, so at the end of the reign of James I. it was converted, under the revived name of St. John's Hospital, into an asylum for six poor widows.

At the beginning of the 15th century, through the beneficence of a Mr. John Bent, four more widows were provided for. Though the old Almshouses have been replaced by a more modern building, yet both charities still exist and are administered by the Corporation. The ruins of the old chapel of St. John were discovered in 1792 under the old Town Gaol, which was adjacent to the Almshouses.

Beyond the Almshouses at the corner of Freeschool Lane and High Street is the building which was once the Free Grammar School, built in Queen Elizabeth's time out of the proceeds of the sale of the materials of St. Peter's Church, which stood near by (St. Peter's parish having been incorporated in that of All Saints'.) The building is now a carpet warehouse, but, outside, it still bears the combined arms of Queen Elizabeth and the borough, with a list of benefactors to the school. It was kept in repair out of the funds of the town, and very definite rules were laid down as to the methods of conducting the school. The children had to come at 6 in the morning in summer, and at 7 in the winter, and remain until 12. Afternoon school was from 1 to 5, so the hours were very long. Thursday afternoon might be a half-holiday "and no other day." The master was appointed and paid by the Corporation, and once a year the scholars delivered Latin and Greek speeches at the High Cross. In this school the children of the town and neighbourhood, of every class, from the young Earl of Stamford downwards, received their education for many successive

generations, until the beginning of the 19th century. In 1841 it ceased to exist in this building, and later on was incorporated in the Wyggeston Boys' School.

Just below the Grammar School stands

ALL SAINTS' CHURCH,

or All Hallowes, as it was frequently called in olden day. The first All Saints' was built in Saxon days and stood here at the Conquest. In Norman times it was rebuilt and remains of this edifice are found in the fine Western Norman doorway. The font dates from the 13th century, and the pulpit from the 15th; the chancel is modern. But the most interesting feature of the church is probably the quaint old clock placed over the south door in full view of all passers-by in the street It was put up in James I.'s time on the front of the church, and remained there until 1875, when, its works being worn out, it was taken down. But in 1900 it was restored and replaced in its present position. It consists of a dial, above which is a panel on which is painted an allegorical representation of Time with his scythe. Above this in two arches are two small delicately carved Jack figures about one foot in height, dressed in Jacobean fashion with ruff and trunk hose. These figures strike the quarters of the hours on two little gongs.

Alderman Newton was a strict attendant at All Saints' Church, and was buried in the churchyard. The church was restored in 1852.

Retracing our steps to the intersection of St. Nicholas' Street (on the right, opposite

High Street) with High Cross Street, we turn down this street and in the course of a few yards come to

ST. NICHOLAS' CHURCH,

Leicester's oldest building, standing on a site that tradition asserts has always been dedicated to religious purposes. Even the Romans had a temple here dedicated to Janus. A Saxon church succeeded the Roman temple, and parts of the north wall of the Nave belong to that very church, and are partly composed of bricks and stone which were almost certainly used for the Roman temple and other Roman buildings, for they are identical with those composing the adjacent Jewry Wall, an undoubted Roman remain. In this north wall, above the arches, are narrow windows which are true Saxon work. The arches themselves are Norman, for the church was largely rebuilt in Norman times, and the tower and south porch are also of this period. The chancel was rebuilt in the 13th century, and contains a beautiful early English pillar with detached shaft. The canopied stone niche in the west wall of the north aisle came from the chapel of Wyggeston's Hospital, when, in 1875, it was removed from St. Martin's. The north aisle is modern, 1875, built to replace the old Norman one which was taken down 200 years earlier. A spire was added to the Norman tower at some uncertain date, but was removed as unsafe at the beginning of the 19th century. The stone pillars standing in the churchyard were unearthed in 1885 during excavations

in Holy Bones Street, and are judged to be Roman remains. The tower has just been restored. By the side of the church stands the well-known

JEWRY WALL.

A tablet affixed to it says that it was so called because the Jews of the town used to dwell in its neighbourhood, but it has no other connection with the Jews, for it is a relic of Roman times of the greatest archæological interest. It is about 25 yards in length and about 5 or 6 yards in height, and consists of several arched recesses, made of brick and stone courses alternately, and the Roman method of constructing the arch with brickwork is clearly displayed. What precisely the Jewry Wall was is not absolutely known. Some suppose it was part of the Temple of Janus that stood here, and it is said to closely resemble the ruins of an ancient temple in Rome. Others believe that it was part of the western gateway of the city up to which the Fosse Road led. Another theory combines these two and asserts that it was originally the gateway, but that later it was disused for this purpose and made part of some building such as a temple or a bath. This hypothesis is strengthened by the fact that the wall really appears to be the work of two distinct periods, the outer or western face, that is in a factory yard and not open to view now-a-days, resembling a gateway, and being of much older construction than the eastern face at which we are looking. Two specimens of

ROMAN PAVEMENT,

both in their original positions, should next be visited. The first can be seen at a shop opposite St. Nicholas' Church (a notice calls attention to it) and it is specially noteworthy for its very uncommon pattern, namely, that of a Peacock with outspread tail. The second specimen should on no account be missed, even though it involves a slight detour and needs a little guidance to find, for it is a splendid relic of the Roman occupation of the town. Retracing our steps to Great Central Street, we turn down it and walk past the Great Central Station, noticing on the way the street called Holy Bones, from the fact that large quantities of bones, probably sacrificial, have been turned up in the neighbourhood during excavations. After passing the Station, turn to the left under the railway arch into Blackfriars Street, here turn again to the left—a signpost directs the way—and we come to a Roman Pavement under the railway. The keys are kept at a little shop adjacent, and (on payment of 3d. each person) an attendant unlocks the entrance to a vault, lined with white bricks, of which the celebrated pavement forms the chief part of the floor. This pavement was discovered in 1832, when the foundations of a house were being dug. For 58 years it lay—luckily undisturbed but very difficult of access—in a dark cellar. Then the Corporation bought the house and improved the approach and the lighting. Quite recently the Great Central Railway, requiring the site above for

the line, have made the present excellent building for its safe keeping. It is a beautiful piece of Mosaic work, the greater part of a floor some 23 feet square, and a marvel of constructive skill and colouring when one considers that only the simplest materials—little pieces of brick and stone in their natural hues—are used, namely, red brick in two shades, slate of a bluish grey, an oolite of warm buff, and a kind of white limestone, while a sage green limestone is found in the outer border. The Mosaic is laid on cement which rests on a bed 3 or 4 inches thick of pounded brick and lime, and has a foundation of strong concrete. Liquid cement was probably poured over it to fill in the crevices, and the surface then rubbed down and polished. Its site was about the centre of the Roman Town and it is believed to be a floor in the residence of the Prefect. It is probably about 1800 years old.

Other Roman pavements, though of less size and beauty, have been discovered in other parts of the town ; some of these have been covered up again, others have been removed to the Museum, where they may now be seen. Leaving the Roman pavement, continue past the shop where the keys are kept, and then turn to the left into Bath Lane. This brings us to the

WEST BRIDGE.

The first West Bridge was erected (it is believed) by Robert de Beaumont, at the beginning of the 12th century. It was partly rebuilt in 1290, and the little chapel—dedicated to our Lady of the Brigge—which

THE CLOCK TOWER.

THE TOWN HALL.

stood upon it, was likewise restored. This renovated bridge lasted nearly six centuries, and, when it was taken down in 1841, traces of the original early Norman bridge were found. At this bridge the tax on wood, called Brigge Silver, was paid, as well as at the North Bridge, while on its town side stood the West Gate. In the 16th century the "scolds" of the town in extreme cases received their ducking in the river beneath the bridge, and were at times nearly drowned in the process. The present bridge is the one erected on the old one being removed. A few yards along the right hand road beyond the bridge is the celebrated

BOW BRIDGE,

over an arm of the River Soar. In mediæval times there were two bridges here; one the "Little Bow Bridge," consisting of one large high arch—the Bow—which was simply a footpath for the Monks of the Augustinian Priory to the Convent well across the water; the other bridge—the Bow Bridge—a few yards to the south-east of it, was the main thoroughfare, and over it King Richard and his troops marched on their way to the ill-fated Bosworth Field. This second bridge was composed of five low arches, with low parapet walls, and the story runs that King Richard asked a "wise woman of Leicester" of his fortune in the coming battle, and was warned that where he struck his heel, going, there should his head be dashed in returning, and that the prophecy was fulfilled at the parapet of the bridge.

A tablet above the bridge says—"Near this spot lie the remains of Richard III., the last of the Plantagenets," and popular rumour is that his body was thrown over the bridge on the evening of the day of battle. This, however, is not correct. Richard's corpse, bare of clothing, was brought back, hanging over a horse's back, and taken to the Collegiate Church in the Newarke (or some say to the Guild Hall), where it lay exposed to public view for a day or two; it was then buried in the Church of the Grey Friars. But after the dissolution of the Monasteries the mob, incensed by an account of Richard's treachery to his little nephew, which had just been published, disinterred his bones, carried them to Bow Bridge, and flung them over there. His stone coffin served as a drinking trough for horses for many years afterwards, at the White Horse Inn in Gallowtree Gate. The Priory of the Augustinian Monks stood between the West Bridge and the Bow Bridge, but the Bow Church and the burial ground of the Priory stood by the well, on the other side of Bow Bridge, and on the site now occupied by the large elastic web factory of Messrs. Archibald Turner & Co. The white buildings of the factory owe their somewhat ecclesiastical appearance to the fact that the central and original building, built at the beginning of the 19th century, is partly a copy of the old chapel, with its Gothic window, on whose exact site it stands, and that the later additions to the structure have been made to harmonise with it.

We now retrace our steps over the West Bridge, then take the Road to the right, and so come to

ST. MARY'S CHURCH,

a church of special beauty and interest. Though a Saxon church built by Ethelfloeda, Lady of Mercia and daughter of Alfred the Great, stood here, no trace of it remains, as it was destroyed by William the Conqueror in 1068. It was rebuilt in 1107 by Robert de Beaumont for the use of himself and his retainers living in the Castle at its side, and so it was called St. Mary de Castro. Robert de Beaumont attached to it a College consisting of a Dean and twelve secular Canons, and gave it large endowments, but his son, Robert Bossu (the hunchback), took some of these away, when he became Earl, to found the Abbey of St. Mary de Pratis—Leicester Abbey. John of Gaunt was largely connected with this church, as he spent much of his time in Leicester Castle, and it is highly probable that the reformer, John Wycliffe, Rector of Lutterworth, only 14 miles away, to whom John of Gaunt was a great friend, preached many a time in his patron's church. When Wat Tyler and his mob rose in anger against the imposition of the Toll Tax, and threatened to march upon Leicester to wreck their vengeance upon the Castle of John of Gaunt, whom they held responsible for the grievance, the valuables of the Castle were hastily transferred to the church for safety, but happily the mob never appeared.

Perhaps the most gorgeous scene the church ever witnessed was when Henry VI.,

a little lad of 5 years, was formally received into the ranks of Knighthood there, and was invested with the royal sword as he knelt before the altar. Forty other candidates were likewise admitted to the same honour, and the scene, with its nobles and their ladies, the Court officials, the clergy in their vestments, the banners, music and splendid ritual, must have been brilliant in the extreme. The address on the occasion was given by Henry Beaufort, Bishop of Winchester, afterwards the notable Cardinal Beaufort. St. Mary's Church was always linked with the life at the Castle, and was the church of the governing authority, the aristocracy, as opposed to the Church of St. Martin's—the church of the town and the domocracy, so that when there were no more Earls of Leicester—its last Earl, Henry Bollingbroke, becoming King of England—much of the glory departed from it.

Before entering the church by its north door, notice the Norman doorway, with its rich decoration of zig-zag carving. The little niche above the doorway is in the best style of Norman work, and the capitals of its tiny pillars are very beautiful. It was probably originally the window of a small priest's room above the porch.

Once inside the church we realise that it has very uncommon characteristics; indeed, it has been declared to be "at once the delight and the despair of antiquarians." It consists of a chancel, two naves, a narrow north aisle, and a small chapel, known as St. Anne's Chapel, to the north of the pulpit.

The chancel and north nave and St. Anne's Chapel are Norman, and part of the church built by Robert de Beaumont. Notice in the chancel the finely decorated Norman windows, while the sedilia are also remarkable for their rare and beautiful decoration. The piscina is undecorated; for many years it was hidden by a gravestone which had been set up in front of it. The wide arch, under which is now the list of the Mayors of Leicester who have belonged to the parish, is supposed to have originally spanned the canons' seats. The low mural arcade at the west end of the church is also one of the oldest portions of architecture now remaining. Notice the elongated capitals of the pillars. Parts of the old Norman clerestory, too, remain, and it is obvious that the roof of the original church was much lower than the present one. In the 14th century the church was enlarged in order that it could serve the purpose of a parish church as well as a castle and collegiate church, so the south nave was added, and the original Norman windows of the older nave bricked up, and at the same time some of the chancel arches were opened. Above the Early English arches, which are now between the two naves, can be seen traces of the original Norman windows. As wooden screens were placed under the arches the two naves were practically two churches —a parish, and a collegiate and castle—side by side. An altar stood at the east end of the south aisle, where the organ now is, and the sedilia and piscina (here of Early English architecture) are still to be seen. An inter-

esting comparison can be made between the late Norman architecture of the sedilia and piscina in the chancel, and the Early English style of the same parts in the south aisle. But, notwithstanding this division, the churches so communicated that it was possible for High Mass to be heard in both at once. Both churches were under the same staff of clergy, the dean of the college being vicar of the parish. It is this provision of the church to serve a double purpose that gives it its unique character.

The font is rich Early English work, and is situated beneath the tower. On the floor near it may be seen some tiles from the earlier church, and also the fragments of an ancient tomb. The tower is Early English, up to the band of tracery, and a spire was probably erected at the time when the south nave was built, but it seemed specially subject to injury by lightning, and, after various mishaps from this cause, it was finally destroyed in 1783. The present beautiful and slender spire, an admirable copy of 14th century work, replaced it at the beginning of the 19th century. A diagonal buttress on the tower is exceptional and worthy of notice. About 100 years after its erection the south aisle—the Parish Church—was used as the chapel of the Trinity Guild of the town. Four collections were made in it every year to defray both the cost of the Guild priest's stipend and the annual treat and feasting of the members of the Guild on Trinity Sunday.

On leaving the church we pass under an

archway formed by an old house, which was the Porters' Lodge of the Castle and dates from the Early Tudor times. To the right of it is the old Castle House, sometimes called John of Gaunt's House, which is credited with being his residence and where he made his will in 1397. By this he left his "red garment of velvet," missals, and other things to the Collegiate Church in the Newarke. The house contains various spacious rooms, and one very large apartment, still known as John of Gaunt's kitchen. On entering from the Gateway we are in the courtyard of

THE CASTLE.

The Leicester Castle, now represented by only a plain red building, was built by Robert de Beaumont, first Earl of Leicester, about 1107, to replace a still older but simpler building. The south gable, which rises above and behind the present frontage, is the only part of the Castle of the de Beaumonts that can be seen from the outside. But inside, the Great Hall, which characterised it and was the scene of so many memorable events, still remains more or less intact, though greatly spoilt by being cut up into portions for the convenience of the Law Courts, and also from having had its ancient walls recased.

It has been dedicated to the dispensation of justice ever since the end of the 13th century, for when Edward I. first appointed itinerant judges, his brother, Edmund Crouchback, Earl of Leicester, arranged that in Leicester they should hold their Court in the Great Hall of his Castle. (We have even

a record of the first case tried there, namely, "Geoffrey the Mason," who stole vestments, books, and ornaments from St. Leonard's Church). Thus its walls have resounded to the enunciation of the laws of England in all their developments for more than six centuries. There still also exists a large underground vault connected with the Great Hall, where prisoners were kept. It is known popularly as "John of Gaunt's Cellar." If condemned to death, the wretched man was brought straight out into the courtyard and beheaded and buried there, and many a decapitated skeleton has been dug up in front of the Castle to speak of those days. The keep of the Castle was situated in the mound among the trees on our left as we stand facing the Castle, but no trace even of its foundations is now to be found, as the mound was partly levelled for a bowling green in the 18th century. The residential part of the Castle was on our right, and is now represented, as we saw, by part of Castle House.

Though Leicester Castle to-day is of so unpretentious a character, it has played an unusually large and brilliant part in the past. In it the first meeting of King John's discontented Barons was held (1201); from it the first Parliament of England was summoned by its Earl, the great Simon de Montfort, and as his home it was visited by King Henry III.; Edward I. was a guest in it in 1305; and his son, Edward II., came on several occasions. Queen Isabella, wife of Edward II., stayed there too, and we have the records still of the loyal gifts that the

burgesses of the town brought to her on that occasion. A few years later a most interesting scene was witnessed in the Great Hall, for the Pope sent two Legates to try and reconcile the unpopular Edward II. to his cousin, Thomas, Earl of Lancaster and Leicester, who had headed the Barons in their quarrels with their Sovereign, and King, Queen, Papal Legates, and discontented Barons all assembled in it. Reconciliation was followed by much merriment and feasting, but the happy result was not permanent, and four years later the Earl was beheaded as a traitor. His brother and heir, Henry, Earl of Lancaster, maintained the Castle in regal style, and the entertainment of royalty was no infrequent thing, in spite of a curious saying that ill-luck attended a Monarch who lodged in Leicester Castle. When the good old Earl died, the King and Queen, Edward and Phillippa, came to Leicester Castle, with a long retinue of the highest in the land, to attend his funeral in the Newarke Church. For a time the Castle lost some of its prestige, but when John of Gaunt took up his residence there at the end of the 14th century, its old glory returned to it for a while, and the greatest in the kingdom, by intellect as well as by birth—for Chaucer and Wycliffe were among his friends—visited the mighty Earl there. But evil drew round it as the days wore on, and it was the scene of the death of his daughter-in-law, the young Mary de Bohun, who would have been Queen of England had she lived to see her husband, Henry Bollingbroke, made Henry IV. When Henry became king the Castle

was a royal residence, but was little used as such. Henry VI. gave it, together with the Town, Manor, and Honour of Leicester, as a marriage settlement to his wife. Parliament occasionally sat in the Great Hall, certainly in 1426, but gradually the building fell into bad repair, and Richard III. preferred the comfort of an inn before the battle of Bosworth. In 1512 Leland writes: "The Castelle standing nere the West Bridge is at this tyme a thing of smaul estimation and there is no apparaunce other of high waulles or diches." Matters went from bad to worse until Charles I.'s reign, when the royal order was given to repair where possible and sell the materials of the remainder. The Castle House, the Sessions Hall, and the South Gateway are reported as repaired, and three officers who visited Leicester shortly afterwards wrote: "Wee then marcht to the Castle and view'd that goodly large Hall w'ch was John of Gaunt's domesticke and princely habitation wherein the Judges sit." The last time that festivities of any importance were held in the hall was in 1774, when a concert was given there in aid of the Infirmary, just then being started. Some day, perhaps, the fine old hall may be cleared and restored as far as possible to its original form as a fitting memorial to the glorious past. As "the home of the Norman captains; then the abode of an Earl whose name is identified, and will be nobly identified, for ever with the first great struggle for the liberties of the people of England—Simon de Montfort; and, subsequently, the palace of the descendants and progenitors

of the most potent of England's Monarchs—of her Edwards and her Henries—the Castle of Leicester stood on ground that is dear to every Englishman, and is hallowed by a multitude of august and inspiring associations." (The Great Hall and the dungeon can be viewed on application to the Castle keeper, living in one of the houses in the Castle Yard). Notice the fine western Norman doorway into St. Mary's Church, intended for the use of the inmates of the Castle. This doorway had been plastered over for centuries, and was only found again in the middle of the 19th century.

Leaving the Castle and continuing our walk, we pass under the now ruined but most picturesque turret gateway, one of the entrances into Castle Yard. A few yards through the gateway brings us into

THE NEWARKE,

or "New Worke" of Henry Earl of Lancaster, who enclosed this area of about four acres with walls and watch-towers, and built within it his "New" or Trinity Hospital and his famous Collegiate Church. On our right is

TRINITY HOSPITAL,

founded by the above Earl in 1331, "in honour of God and the Virgin Mary," for the maintenance of fifty infirm old men and five women as nurses, under the management of a master, four chaplains and two clerks. In 1354 his son enlarged the original scheme and added fifty more pensioners and five nurses, and he also engrafted on it a Collegiate Church,

which stood opposite the Hospital on the present site of the Technical and Art School. This church must have been exceedingly beautiful, for we are told it was a most magnificent and goodly college, and Leland, visiting it, speaks of it as "exceeding fair," while another old writer says that "Knights and Squires commended it as being the most fairest that they had seen." In it were buried Henry, who founded it, Constance, wife of John of Gaunt, and Mary de Bohun, first wife of Henry IV. The church was demolished after the Reformation, and only the merest fragments of its foundation are now to be found in the cellar of the old house at the back of the Technical School.

The Trinity Hospital itself was restored by George III. in 1776, and that building sufficed until 1901, when it was again largely rebuilt and improved (part of the ancient building being incorporated). On entering by the main doorway the first thing that meets the eye in the hall is a huge bell-metal cauldron, holding 61 gallons, called "The Duke of Lancaster's Porridge Pot," and supposed to have been used from the very foundation of the Hospital. It is one of the finest specimens of these old vessels in existence. Along the passage at the right is the chapel, part of which is the original building of the founder. Under the north window of its chancel lies the figure of a lady dressed in a rich mantle. As the tomb has no inscription of any sort upon it, speculation has been rife as to who this lady is and how it came there. It is generally asserted that the effigy was brought

here from the Collegiate Church when that was demolished, and that it represents the unfortunate Mary de Bohun, wife of Henry IV. and Mother of Henry V., who died at Leicester Castle. As her husband was only Earl of Derby at her death the tomb is generally referred to as that of the "Countess of Derby." Mr. Wyrley, visiting it in 1590, speaks of it as "a very fair and stately monument of a lady, curiously wrought but of no note or mark." The six suits of armour hanging in the chancel are supposed to have belonged to the Town Watch in Queen Elizabeth's days, and to have been adapted and worn at the Siege of Leicester in the Civil War. The pulpit and carved oak seats were originally in the old chapel of Wyggeston Hospital, and were placed here in 1869, when the Wyggeston Chapel was removed from St. Martin's. The altar rails were formed from a tall, perpendicular screen, which formerly surrounded the font in All Saints' Church. The Credence table was partly made out of old oak found some years ago under the floor of the pews in St. Mary's Church. The little vestry was the old mortuary ; a two-light Early English window (cir. 1250) in it formerly belonged to an ancient Hospital at Ashby Folville.

During the recent restoration plaster has been taken off the pillars, and various small niches for figures have been uncovered, particularly at the north side of the entrance to the chancel.

Belonging to the Hospital, and usually kept in the chapel, is "Queen Elizabeth's

Pocket Piece," a nutmeg-grater (though some assert it is a salt-box), on which is inscribed on the top, "Anno Regni, Reginæ, Elizabeth Angliæ." On one side, "Thinke wel and say wel, but rather do wel." On the other side, "Flee idilness and be wel occupied, 1579." On the bottom, "This belongeth to the Olde Ospitall."

At the present time, of the 110 pensioners* of the charity, forty men and thirty-nine women reside within the walls, all of whom are over sixty years of age. Recipients of the charity are nominated by the Mayor or the Chaplain, the former having four nominations to the Chaplain's one, each nomination, however, being subject to the approval of the Chancellor of the Duchy of Lancaster. In Elizabeth's reign the Earl of Huntingdon was Warden, but he sold the office in 1609 to the Corporation of Leicester, so that the Mayor became Master for his year of office, assisted by four "most ancient" Aldermen. On Whit-Monday every year a special sermon is preached in the chapel. This was originally provided in 1614 by Sir William Hyricke, who left 20/- annually for the purpose, but in 1698 his heir, William Heyrick, of Beaumanor, refused to continue it on account of personal grievances; the defect was soon after remedied by a bequest from William Staneley, Rector of Cossington, who stipulated for a sermon exhorting to charity. On Trinity Sunday afternoon all the inmates —the men in distinctive black gowns provided

*A new scheme to increase the number of pensioners to 150 is now before the Charity Commissioners.

for them—go to St. Mary's Church, the Mayor and Corporation also attending. A special sermon is preached, and the collection is afterwards divided among the old almspeople. This custom has been observed for nearly 300 years. (The Hospital can be seen and the chapel visited on application within).

On leaving the Hospital, notice on the left the three-storeyed, ivy-covered "Chantry House," which was the home built by William Wyggeston in 1512 for the priests to reside in who served at the Chantry he had founded in the Collegiate Church of the Newarke. His coat of arms can still be seen upon the front of the house. (See page 50).

Traditions of underground passages in the Newarke have always been rife, and, when repairs in the street were being made in 1897, two such passages were found—one from Trinity Hospital running towards the Castle mound and river, and the other going from the front of the Vicarage towards the Hospital. The first was about 8 feet high and 8 feet wide, and was built of rough granite, strongly arched. Remains of pottery of the 17th century and a skull were found in it. The passage was probably a covered way down to the river. The second passage was only 3 feet high and 2 feet in width. Both passages were left intact.

And now, in the midst of all the associations of the past we come to one of Leicester's most modern developments, namely

THE TECHNICAL AND ART SCHOOLS.

The building was opened in 1897 at a cost

to the town of about £32,000. It is managed by a Committee of the Corporation. Though both Technical and Art Schools occupy the same building, they have each an independent head master and staff, and are quite distinct in their working. The Technical School occupies the ground floor and basement, the Art School is in the two upper storeys. The number of students enrolled is as follows:—Technical School, 1,039; Art School, 470 (together with 1,060 pupil and other teachers sent from the Municipal Teachers' Training College); making a total number of 2,569 students.

The Technical School provides courses of instruction for apprentices and others in the various staple trades of the town, namely, boot and shoe, hosiery, plumbing, carpentering and joinery, house painting, paper hanging and decoration, engineering, electric lighting, machine construction and drawing. and dyeing (especially leather and wool). There is also a commercial course for those intending to enter business houses in the town, and this includes mathematics, book-keeping, shorthand, and foreign languages. A scientific course is further provided for those "who wish to specialize in chemistry, physical or mechanical sciences, with a view to acquiring a better knowledge of the scientific principles underlying the staple trades of Leicester." The instruction in each of the trade subjects is made thoroughly practical, and the trend of each of the classes is helped by an Advisatory Committee composed of employers and prac-

THE JEWRY WALL.

THE MAGAZINE GATEWAY.

tical men in that special subject. In addition to lecture and class rooms, each trade has its own room for practical work. Thus in the hosiery department there are various kinds of machines for the manufacture of stockings, vests, etc.; in the boot and shoe room are different types of machines used in the factories; in the dye house actual specimens of wool and leather are treated; while the engineering room is well equipped with modern appliances, largely the gift and choice of the engineers of the town, and so on. Moreover, as it is desired that students should not learn their trade by mere "rule of thumb," but understand the rationale of it, they are encouraged to take up the scientific classes which bear upon it—thus dyers are urged to take up chemistry; for boot and shoe pupils there is elementary mensuration and technological science; for plumbers, mathematics and mensuration; for engineers, mathematics and applied mechanics; for house painters, drawing, design, lettering, etc. A class held for factory routine and the principles of manufacture is intended for employers' sons and others with superior education.

Leicester Technical School is the only school in the kingdom which earns a grant for day classes in the principles of the boot and shoe trade. There are many scholarships, prizes, and medals to stimulate the work of students. In the

ART SCHOOL.

the course of instruction may be classed under three heads:—

(1) Art which is specially applicable to various trades, such as lithography, writings and designing in the printing trade; metal working (including gold and silversmiths' work); modelling, wood and stone carving, house decorating, bookbinding, enamelling, tile designing, book illustrating, embroidery, and lace making. Courses of study are also provided for architects and surveyors.

(2) Classes for teachers of drawing in elementary and secondary schools; in these blackboard drawing takes a prominent place.

(3) Classes for general students, such as flower painting, landscape painting, still life, study of the human figure, etc.

Moreover, the staff of the Art School superintends the whole of the art tuition in the elementary schools of the town.

In order that students may have specimens of good work and design before them, there is a permanent collection of objects of art (which are changed annually), lent by the South Kensington authorities. During the winter, lectures on some special course are arranged, the lecturers being frequently drawn from other places. During the session 1904-5 these lectures had special reference to printing and allied trades.

On leaving the Technical Schools one should pause for a moment and notice the picturesque view, on the left down Castle Yard, of the ruined gateway, with St. Mary's Church and its beautiful spire in the background. In the Newarke—where we now stand—a curious scene used to take place every year on Shrove

Tuesday from time immemorial until 1845. This was known as the "Whipping Toms," Three men, armed with heavy whips and preceded by a bell-ringer, used to enter the Newarke and attempt to clear it of the idlers and others who had assembled there in anticipation of a scuffle. For several hours the contest went on amid a scene of great confusion ; ultimately it led to scenes of such disorder that it was put an end to, not without difficulty, by a clause in the Leicester Improvement Act of 1846. It was popularly believed that the custom of "Whipping Toms" was instituted as a memorial of the expulsion of the Danes out of Leicester in pre-Conquest days, but it is more likely that it was connected with some ancient rights of the people over the Newarke site.

Passing along the Newarke, we now face the great

MAGAZINE GATEWAY,

one of the very few mediæval buildings still left to Leicester. This was built in the middle of the 14th century as the chief entrance gate of the College in the Newarke, founded by Henry, Earl of Lancaster. It was strongly fortified, and also served as a barrack for the men patrolling the walls. The battlements that it once possessed and the upper parts of its turrets have disappeared, and externally it has been restored and refaced ; still the original building remains essentially unchanged, and its interior is little altered. It contains a Porter's Lodge ; the apartments, with iron studded door, of the Guard ; and two large upper apartments that

were once open to the roof. The circular turret on the Oxford Street side was a sort of sentry-box for the look-out man. Its name of Magazine Gateway was given to it in later years from its being used as a store-house for arms. Around this gateway some of the fiercest fighting in the Siege of Leicester, 1645, was experienced, Prince Rupert himself leading the attacking force at this point, and the garrison of the Newarke held out long after the defenders had been driven from every other point of the fortifications.

Until 1904 all the traffic through the Newarke had to pass under the low gateway (the roadway is, however, two feet higher now than it was when the gateway was first built), but in that year old houses at its side were removed and the entrance into the Newarke thrown open. When we have passed out through the Magazine Gateway we now have Oxford Street on our right and Southgate on our left. In Southgate Street stood the south gate of the town, and Oxford Street was in olden days part of the London Road, leading to Wellingborough, and the road into the town along which kings, dukes, nobles, pilgrims and traders all journeyed to and from the Metropolis. It was the avoidance of this busy thoroughfare during a time of plague that first brought into general use the London Road by Harborough, now the main road of the town. Five minutes' walk along Oxford Street brings us to the Infirmary, Leicester's chief charitable work (see page 100). But if this detour is not desired, we can

continue our way up the street opposite the Magazine Gateway—Newarke Street—once less euphoneously known as "Hangman's Lane." Under this street, which has just been widened to accommodate the ever-increasing traffic to the west end of the town, several leaden coffins and other Roman remains have been found. Notice the new Revenue Offices and County Court, just completed. Newarke Street leads into Welford Place, where a statue of John Biggs stands to recall to memory a man who, in the middle of last century, was one of Leicester's most prominent men, and one, too, who aided largely the modern development of the town and earned the respect of all. The Leicestershire Club stands on our left. Opposite is the beginning of the pleasant promenade known as the New Walk, which runs under an avenue of trees for three-quarters of a mile up to Victoria Park. From here, two minutes' walk down Belvoir Street brings us into Granby Street, just above the General Post Office.

LEICESTER ABBEY—ABBEY PARK—ST. MARGARET'S CHURCH.

Starting from the Clock Tower to visit all that remains of Leicester Abbey, we take the road that runs along Church Gate. At St. Margaret's Church it turns abruptly to the left along Sanvey Gate (the old Sancta Via), and then to the right across Frog Island and over the North Bridge. (Or take the tram that passes down High Street and Great Central Street and alight at the North Bridge).

But, before turning down Abbey Lane, it is well to pause a moment on the bridge and recall some of the memories that are associated with this historic spot. A bridge has stood here from earliest times—its old name was St. Sunday's Bridge. Near it, in Saxon times, stood the Royal Mint, which carried on its work of issuing coin for over 200 years, until it ceased about 1173, probably when the town was destroyed. Here the toll of wood-money was paid for the privilege accorded to the burgesses by Robert de Beaumont, Earl of Leicester, of cutting wood in the thick forests of Charnwood just beyond—"six cartloads a dernier (7½d.); a horse's load, one penny; and a man's load, one farthing." And because this toll was paid at the North and West Bridges it was often called "Brigge Silver." Once, too, the townspeople block-aded the bridge to cut off supplies from the Abbey when the monks had offended them, and here, too, centuries later, the Mayor and Corporation came down in solemn procession, all in scarlet robes and on horseback, to welcome with a Latin oration His Majesty, James I., when he paid his first visit to his loyal Leicester subjects. And it was just at this point of the river that the army of his son, Charles I., under Prince Rupert, made an attack upon the town when it held out on the side of Parliament in 1645, with the unfortunate result that the old St. Leonard's Church, which had stood by the bridge for centuries, was burnt down. It had probably been built as a halting place for travellers, who, if they came from the north, entered the

town over the bridge. The present church is a modern edifice, built on the site 230 years later.

Abbey Lane is on the immediate right after crossing the bridge, and down it we pass and shortly come to massive old red brick walls, which were built at the end of the 15th century, in the days of Abbot Penny. Notice the beautiful niche, intended for a figure, at the corner of the walls. It is said that the walls enclosing the Abbey grounds are now the only remains of the original Abbey. Continuing by the wall, we presently reach a gateway, and a walk down a short drive between two hedges brings us to a house and some ruins. (The land now belongs to Earl Dysart and is laid out as nursery gardens, but permission to look round will readily be granted by the tenant). Though the ruins we see are not those of the Abbey, but of a later building, we are yet on historic ground. Even burial urns of the Roman period have been found here, but no traditions linger of this epoch. Our earliest records of the place commence in 1143, when Robert le Bossu, second Earl of Leicester, built in the meadows the Abbey of St. Mary de Pratis (St. Mary of the Meadows), and here he later retired and died. It was afterwards enlarged by Petronilla, wife of the third Earl, who also gave a rope made from her own hair to suspend the lamp in the chancel. The Abbey was richly endowed and had large estates—in particular four farms or granges, two of which are familiar Leicester names—Westcotes Grange and Stoughton Grange. The other

two were at Ingarsby, in the county, and Meadowplek, in the Peak district.

The monks were only a small community of Benedictines, of the order of St. Augustine. They spent their time in religious exercises, in acting as physicians and almoners, in keeping an infirmary for the sick, in exercising hospitality to strangers, and in illuminating and transcribing MSS. They were by no means great ascetics; indeed, one of their Abbots in King Edward III.'s reign was a noted hunter, and later we hear of part of the forest being enclosed by them as a deer park. The Abbots at first had the right to sit in Parliament, but were afterwards exempt on account of the expense and trouble it entailed. Abbot Penny was one of the most noted rulers of their fraternity. He left Leicester in 1500, when he was made Bishop of Bangor and Carlisle, but he appears to have been fond of his old home, for we find him revisiting it in 1520, on which visit he died and was buried in the chapel.

Our chief association with the Abbey, however, lies in the fact that Cardinal Wolsey died there. He arrived one dark Saturday night in November, 1530, and was received at the great doorway by Abbot and monks carrying torches. Saying, "Father Abbot, I am come to lay my bones among you," he went straight to his room, "very sick." On Monday he was obviously dying, but was disturbed by a King's messenger enquiring after some £1500 that was alleged to be missing. On Tuesday, after being shriven, he summed up very pertinently to his confessor

the character of his royal master. "He is a Prince of royal carriage and hath a princely heart, and rather than he will miss or want any part of his will or pleasure he will endanger half of his realm." He pathetically added that he could never "persuade him from his will and appetite." Then, saying farewell, he died, and, after lying in state, "open and barefaced," for the Mayor and Corporation of Leicester to see and testify to his actual death, he was buried at four o'clock on the Wednesday morning in the Lady Chapel. But the spot where he was laid no man now knows; even the actual situation of the Abbey and its church in the grounds is forgotten. Seven years later the Abbey was dissolved and its Abbot and ten monks granted life pensions and dispersed. Its furniture and goods and all its belongings were forfeited and sold; even its peal of bells, worth £88, was disposed of, and the deserted buildings soon began to fall into decay.

King Henry VIII. bestowed the estates upon a Mr. Cavendish, a faithful friend of Cardinal Wolsey, and 30 years later a new building—the Cavendish Mansion—took the place of the venerable Abbey, and it is the ruins of this mansion, built probably of the old stones, that we now see.

One thing was saved out of the wreckage: The tomb of Abbot Penny was taken out of the chapel of "Our Ladye," and carried to St. Margaret's Church, where it still rests in the chancel.

Before leaving the Abbey grounds a walk down to the old walls by the

river side will prove of interest.

In a field near the Abbey, and resting in the centre of a wide grassy hollow, is St. John's stone, now neglected and almost forgotten, but round which tradition from the far past lingers. Probably it is some Druidical remain ; it is certain that it was for centuries a place of resort on St. John's Eve, but to be avoided when darkness fell, as it was then given over to fairy revels.

Continuing our walk down Abbey Lane, we come, in a few yards, to Abbey Park Road on the right, and turn here, still keeping by the old Abbey walls. A bricked-up gateway, with a low tower on either side, is still called Wolsey's Gateway, though erroneously, as he entered through the main gateway from the north road. And now we come to the main entrance to Leicester's most beautiful Park :—

THE ABBEY PARK (for description see page 99), and, taking the main drive to the right walk along it, notice that a pretty view of the Abbey across the wall is here obtained, and then leave the Park by the further exit. A few yards down a tree-lined road and we turn over a bridge to the left into Lower Church Gate, and, passing straight up the narrow street, we arrive at

ST. MARGARET'S CHURCH, the mother church of the town. Thirteen hundred years ago, on the site where it now stands, the first Christian place of worship in Leicester rose just outside the town walls. This, though probably of the rudest construction, was a cathedral church, built for Bishop Torthelm,

and his dwelling was by its side, where the vicarage stands to this day; for Leicester was then the headquarters of a Bishop, and so remained until threatened by the Danes at the end of the ninth century, when the Bishopric was hastily removed to Dorchester for safety, and later, in 1078, was transferred to the See of Lincoln. The land round the church was set apart for the maintenance of the original Bishop, and in old deeds of property in this district it is always referred to as "the Bishop's Fee." When the first simple building was replaced by something more durable we do not know, but we find that a Saxon St. Margaret's Church was standing there at the time of the Conquest. No trace of this church is now left. That it witnessed stirring scenes we know. Here Swinderby, the Lollard, preached in fiery strains, and here, too, a year or two later, in 1389, he was condemned to do penance, barefoot, with sheet and candle, for his heretical opinions. In the middle of the 15th century the church was largely rebuilt and redecorated; the beautiful south porch and the fine embattled perpendicular tower, 100 feet high, were added. Money to build the tower came from a tax known as the "smoke farthing," which was levied upon each hearth in the parish for the purpose. The east window of this period is worth notice. One of the two niches was filled by a statue of the Virgin, the other by a statue of St. Margaret. Leland says: "St. Margaret's is the fairest paroch Church of Leicester and thereby the Bishop of Lincoln had a

palace whereof a little yet standeth." On the north side of the chancel is the tomb of Bishop Penny, once Abbot of the Abbey, which was brought here, fittingly enough, at the dissolution of the Abbey, for he had always been interested in St. Margaret's, and his father before him was a devoted adherent. The marble effigy is unmutilated, and he is shown in full vestments and with his Pastoral Staff. It is a great pity that there is no word or inscription upon this beautiful monument to remind the casual onlooker who the Bishop was who is lying there, or what connection he had with the church and town.

In mediæval days the chief religious festival of the year was connected with this church. Every Whit-Monday a procession of vestmented priests, acolytes, minstrels, young girls, men representing the Apostles and others, bearing a richly canopied image of the Virgin and banners and flags of all descriptions, started from St. Mary's by the Castle, wound round to the High Street, and here was joined by similar processions from other churches; and from thence the now long procession made its way down Highcross Street and along the "Holy Way" to the church—the Sancta Via (Sanvey Gate) —and so to the great doors of St. Margaret's, where, welcomed by waiting priests, it passed into the church. And now, at the High Altar, a solemn offering of a curious nature was made, namely, of two pairs of gloves, one to the glory of God, the other to the memory of St. Thomas of India. This done, with due

ritual, the procession returned the way it came to its several churches, to spend the rest of the day in festivity.

Before leaving the church notice the tablet on the south wall to the memory of Miss Linwood, Leicester's celebrated artist in needlework. It was put up by herself in her lifetime; hence the vague "died in the 19th century," as she was unable to fill up the exact date of her decease. St. Margaret's Church possesses a peal of ten bells, which is said to be the finest of that number in England.

Once more on the road we find ourselves in Church Gate, and five minutes' walk up it brings us to the Clock Tower, whence we started.

LEICESTER CORPORATION.

The origin of the Leicester Corporation is lost in remote antiquity, for it is the direct outcome of two ancient institutions, the "Merchant Guild" (or the "Guild Merchant,") and the "Portmanmote." In Roman Leicester there was a Merchants' Guild, in which the traders of the town bound themselves together for mutual support. In Anglo-Saxon days the Guild still existed, and 50 years after the Norman Conquest we find Robert Bossu, Earl of Leicester, confirming by charter the right of the burgesses to their Guild and other customs. As every trader in the town was compelled to be a member and share expenses as well as privileges—"bear his lot and pay his scot"—it became a

great power in the town. A council of 24 was chosen out of the whole Guild, and its principal members were called Aldermen (Aeldormen). About the same time that this charter was given a simple Court of Justice with 24 jurors was established in the town and called the Portmanmote, *i.e.*, the Townsman-meeting.

In 1197 the Guild Merchant was re-organised, as apparently it had become lax; new regulations governing it were made, and henceforth, year by year, new members were continually entering it. A bell was bought for sixpence to summon the members to its meetings, and during the whole of the 13th century we find it gradually growing in governmental functions. We frequently notice that the same officers controlled both town and Guild affairs, and whether they did so at "Morning Speech"—that is, at a Guild Meeting—or through the Portmanmote or Borough Court, was settled by them according to precedent and convenience. Both Guild and Mote were municipal organs, and both gave rise to the Town Council.

In 1251, for the first time, the title of Mayor was used by Peter Fitz-Roger, the chief Alderman of the Guild. (The French words for official titles now began to supplant the Anglo-Saxon ones). During his Mayoralty a new building was set aside as a Guild Hall. It stood near one corner of the graveyard of St. Nicholas' Church, and the original document which conveyed it, for a consideration of six marks and a half of silver and an annual rent of sixteen pennies and two capons, is still extant. Where the previous Guild Hall

stood is unknown, but this new one served the town till Queen Elizabeth's reign.

For the next 100 years the records of the Guild Merchant are chiefly made up of trade disputes, punishments inflicted for offences against the community, and attempts, not always successful, to keep order. The Mayor and his brethren had very extensive powers in their hands, for actual law was not very strictly defined in those days. In 1343 the King granted a market and a fair to be held annually in Leicester, the government of which was vested in the Mayor and in two or three of the burgesses. From the reign of Richard II. the Mayor had a fixed salary of £10, together with certain allowances, such as 13/4 for his "salmon." Allowances were also granted to his clerk and his sergeant. In Queen Elizabeth's reign the Mayor's salary was slightly increased, "for the better maintenance of his housekeeping." An annual Mayor's feast seems to have been established in very early days. In the middle of the 14th century the Corporation began to own property, though only by special licence, obtained by money payments from the Crown. Thus, in 1392, we read of certain lands in Leicester, Whetstone, and Great Glen being given to the Corporation in trust, for the repairing of the bridges of the town and other local expenses. In 1402 various decrees were made by the Mayor at Common Hall to promote better order in the town, such as: (1) "No one to walk after nine of the bell be struck at night without light or without cause reasonable." (2) "That such as bring

wine to the town sell none without leave of the Mayor." (3) "That butchers sell their meat not at their houses but at the Common Shambles."

In 1404 the town, owing to increasing disorder, was divided into wards; "whereas for the great rumour and slander that runs upon the town of Leycs . . . said town shall be divided into 12 wards, and in every of the said wards one of the Mayre's brethren for the time being dwelling within the said ward or next thereunto to be called an Aldreman and to have full power and authority to correct and punish." After a time the office of Mayor does not seem to have been always appreciated by those called upon to fill it, and we find on several occasions an Alderman was sentenced to a fine or imprisonment for refusing to serve. In 1563 the existing Guild Hall was given up and the Hall of the Corpus Christi Guild was bought (see page 54), and this was used for all municipal purposes until the modern Town Hall was built in 1877. In the year of the Spanish Armada the inhabitants of Leicester obtained a charter of incorporation from Queen Elizabeth, by which the Mayor, 24 Aldermen, and 40 Burgesses, "called by the name of the Mayor and Burgesses of the Town of Leicester," became a corporate body, *i.e.*, a Corporation, and entitled to buy and sell land, to sue and be sued, and generally deal with property in their own right, instead of only by special licence and by money payments to the Crown, as heretofore. This charter also confirmed all previous rights and privileges.

ST. MARY'S CHURCH, NORTH DOOR.

WYGESTON'S CHANTRY HOUSE, THE THREE GATEWAY AND ST. MARY'S CHURCH

A new Mace was purchased to uphold the new dignity, but this, unfortunately, was eventually stolen by King Charles' soldiers in the Civil War.

It was in the reign of Henry VIII. that the municipal body of Leicester first clothed themselves in showy and costly apparel, with a view to impressing the common people with a sense of their importance; and somewhat later it was agreed in Common Hall that every one chosen to the Mayoralty should wear scarlet during his year of office (under penalty of five pounds for omission), "according as of old times it had been accustomed."

At this period of its history the Corporation seems to have largely occupied itself with numerous law suits, and with enforcing the strict and regular attendance of the burgesses and their families generally at religious worship. It was evidently feared that the abolition of all forms and ceremonies at the Reformation might bring about laxity in religion and morals. The Civil War and the Siege provided a time of great excitement and anxiety, but after that date and until 1836 little of special moment happened in the Town's municipal history, but in that year the Reform Act came into force and the Corporation was re-organised. In its zeal for modern methods all the town plate and the picturesque insignia that appertained to the body were done away with, and sold by auction by the new Corporation, to the great grief of local historians and antiquaries ever since. At this sale the Great Mace was knocked down to the landlady of an inn for

£85, and carried home before her, in triumph, in quasi-mayoral style. The second of the five Borough Maces, called the "Large Sergeant's Mace," was also bought by a publican for £16. But 30 years later both Maces once more became, and still remain, the property of the Corporation, the first by re-buying for £85, and the second by a generous gift.

At the present time the Corporation is composed of the Mayor, 16 Aldermen, and 48 Councillors. The town is divided into 16 wards, each ward being represented by three Councillors. The chief Borough officials are :—The Recorder, the Town Clerk, the Clerk of the Peace, the High Bailiff, the Clerk to the Magistrates, the Coroner, the Borough Surveyor, and the Borough Accountant.

During the latter half of the 19th century there has been a great development in the powers and operations of the Corporation, for besides attending to the local government of the town, the education (elementary and technical), the Borough Asylum, the parks, Museum, Art Gallery, Free Libraries, Cemeteries, Isolation Hospital, and the sanitary matters generally, it has also embarked upon enterprises of a more or less commercial nature, such as the gas and electric lighting, the water supply, swimming baths, and, lastly, the electric tramway system.

(For Museum and Art Gallery see page 34-37.)

(For Municipal Libraries see page 27.)

PUBLIC PARKS AND RECREATION GROUNDS.

Leicester is well supplied with public parks and recreation grounds, there being four of the former and six of the latter, in addition to children's playgrounds in several parts of the town.

THE ABBEY PARK, separated by the River Soar from the old Abbey Grounds, has an area of 56 acres, and is the best laid out park in the town. Originally a plain meadow, it has been transformed into a beautiful garden, graced by a brilliant succession of flowers suitable to each season. The River Soar skirts it, and a lake in its centre, rustic bridges and arbours, an island, and a mount add to its attractions, while a number of wild fowl inhabit its waters. The tropical and Japanese gardens and the carpet beds are great features in the summer, and a splendid show of chrysanthemums is to be seen in the autumn. There is also a Botanical Garden for the benefit of students. An annual Flower Show is held in August Bank Holiday week, the proceeds of which go towards supporting the bands which play in the various gardens and parks during the summer. This park was opened in 1882 by the Prince and Princess of Wales, now our King and Queen. The main entrance is in Abbey Park Road, three minutes from the Great Northern Station, and from it two drives wind through the park to the other chief entrance off Lower Church Gate. Admittance free except at the Flower Show.

SPINNEY HILL PARK, Mere Road, opened in 1886, has an area of 36 acres, and is laid out on the side of a steep hill. Though the smallest of the parks, it is attractive for the number of large trees that are included in it. There are good cricket and tennis grounds, bowling greens, and a children's playground, all of which are extensively patronised.

VICTORIA PARK, at the top of the London Road hill, is the oldest of the Leicester parks; indeed its position as public property dates back to the days of Sir Simon de Montfort, who, in the thirteenth century, granted this land, together with the district now known as Southfields, to the burgesses of the town for their use and occupation. For more than five centuries it remained common land, where Freemen had the right to pasture horses or cattle,

until, in 1806, the Corporation enclosed the area now called Victoria Park for use as a racecourse, though it still remained open to the public. As "The Racecourse," then, it was known until 1884, when the races were removed to the new racecourse at Oadby. After this date its name was changed to Victoria Park, and it was formally set aside as a public park. It covers an area of seventy acres, and, though not boasting any features of special beauty, is a fine open space that has of late years been judiciously planted with trees. It stands above the town, and commands views of Charnwood Forest and Bradgate Park. There is an excellent cricket Ground on it, and a playground for children with swings, &c.

WESTERN PARK lies outside the town on the Hinckley Road, and is the newest and by far the largest of the public parks. It comprises about 184 acres in all, about 100 of which were thrown open to the public in 1901. It is distinguished by beautiful natural features, and is well wooded with old timber, so that it will rank in the future as Leicester's finest park.

MEDICAL AND BENEVOLENT INSTITUTIONS.

LEICESTER INFIRMARY, the chief philanthropic institution in the county, has cared for the sick poor of the district for over 130 years. In 1764 a Dr. Watts, of Medbourne, interested the Bishop of Lincoln (Leicester being then in that diocese) in a project for housing and providing suitable medical treatment for the poor, when sick. The Bishop warmly co-operated and commended the scheme to his clergy, and a considerable sum of money was soon collected to found an Infirmary. In 1767 a piece of ground, known as Chapel Close, "a dry and airy piece of ground situated at the south end of the town," was bought. Here originally stood the old church of St. Sepulchre (a dependence of St. Mary's), a church where malefactors who expiated their crimes on the adjacent gallows were first shriven and then buried. In the recent extensions of the Infirmary some of the bones of the old burial ground were unearthed.

On this Chapel Close the Infirmary rose, and it is

curious to find that in those days it was on the main road leading into the town—"the London Road leading to Wellingborough"—outside the town gates and amid rural surroundings. The building and site cost £2,700, and it was opened with much ceremony on September 11th, 1771. A service was held in St. Martin's Church, at which a large number of subscribers were present, then a procession wended its way to the Infirmary, which was formally opened, and after this an "ordinary" was provided for the gentlemen at the "Three Crowns," and the ladies at the "Three Cranes." In the evening a grand concert was held in the Haymarket Assembly, the performers at which were selected by the great actor, David Garrick.

For several years the anniversary of the opening was marked by concerts and musical services, which brought in annually over £300. In 1774 a specially grand Musical Festival was arranged in St. Martin's Church, at which Handel's Oratorio of "Jephtha" was performed, for the first time in England in public. A concert was also given in the Great Hall at the Castle, to which a fashionable assembly went in Sedan chairs, and in all the glory of powder, patches, and brocades. By this festival the Infirmary benefited to the extent of £800. An annual sermon was also preached on its behalf, and apparently every year the Committee passed the same resolution: "That the Bishop be thanked for his eloquent discourse, and he be desired to print the same; 40 copies to be sent to the Bishop and 500 sold at 1/- each."

The actual number of beds contained in the institution is not stated, but in the first complete year of its existence there were 89 in-patients. The staff consisted of two physicians and three surgeons. A complete list of the medical staff, from the commencement to the present day, hangs in the Board Room.

A Matron had been selected three years before the Infirmary was opened, and when she entered on her duties in 1771 she was to receive £10 salary, with a gratuity of £5 "if she behaved to the satisfaction of the Governors." Two women were appointed to look after the patients at 2/6 a week

each. The number of patients continued to increase; from June, 1776, to June, 1777, 236 in-patients and 110 out-patients were treated.

The minutes of these early days afford amusing reading at times. One difficulty which seems to have greatly exercised the minds of the Committee was a supposed undue consumption of coal, for, after various remonstrances and requiring the Matron to see it weighed out with a pair of scales, the drastic order was given "that the chimneys in the nurses' room be pulled down and the grates rendered useless." Another curious item provides a shed for the convenience of the Matron, so that she might keep one or two pigs.

In 1794 a Lunatic Asylum was added to the Infirmary, 14 patients being received at first and more later on. Each patient made a small money payment. This department continued in existence until 1837, when the County Asylum was built and the patients removed there, a sum of £1558 being paid over with them.

In 1822 fever wards were built, which were evidently much needed, for in the year 1825 no less than 220 fever cases—mostly typhus—were received.

Perhaps the next most eventful epoch in the history of the institution was the re-organisation of the nursing in 1874 and the introduction of the modern system of nursing.

In 1876 a ward specially for children was first set apart, and this eventually led (in 1889, on the initiative of Sir Thomas Wright) to the building of the Children's Hospital as a wing of the main building.

Since the year 1900 extensive alterations and improvements have been effected in nearly all departments. A new out-patient department was completed in 1905, at a cost of £8000. The "Queen Victoria Memorial Wing," opened in 1902, was the town's gift in commemoration of the reign of Queen Victoria.

At the present time the General Infirmary contains 158 beds and the Children's Hospital 42 beds; in 1906, 2265 adults and 529 children were received as in-patients. The out-patient

department treated 39,994 cases. The magnitude of the work that the Infirmary does for the town and county may be judged from the fact that during the past ten years no less than 231,664 individuals have sought its aid. The annual subscriptions amount to £3,676, while the large sum of £7,417 is received as donations from the workpeople of many firms in the town who have adopted the "hospital-penny-per-week" system.

At the present time the accommodation is frequently inadequate to the calls made upon it, and patients, in every respect necessitous, have to be almost daily refused admittance; so steps are now being taken to increase the accommodation by 96 additional beds, at a cost of £18,000, a new wing being added for this purpose. A new Nursing Home will also shortly be constructed.

The "Sutton Charity," founded 1853, by the late Benj. Sutton, has an income of about £800, which is used in the relief of patients discharged from the Infirmary and Fever House.

THE ISOLATION HOSPITAL, which is under the control of the Corporation, is situated in the Groby Road, on rising ground, a mile outside the town, on the outskirts of the Charnwood Forest.

THE SMALLPOX HOSPITAL, under the same management, is situated in the Anstey Lane, being a quarter of a mile distant from the Groby Road Hospital.

THE LEICESTERSHIRE AND RUTLAND ASYLUM, or, as it is commonly called, the "County Asylum," is situated on the Victoria Road, adjacent to the Victoria Park. It was erected in 1837. It is, however, far too small to meet the requirements of the district, and a new Asylum, standing on an estate of 184 acres, and designed to receive 912 patients, is now in course of erection at Narborough.

In its early days the borough mental cases were also treated there, but their great increase led to the opening, in 1867, of an Asylum for their special benefit. This is known as THE LEICESTER BOROUGH ASYLUM, and is situated near the village of Humberstone. It can accommodate 868 patients. Though lunacy in Leicester is considerably below the average, yet 621 of the patients belong to the parish of Leicester, as against 152 in 1869, so much has the town grown.

Leicester and Leicestershire Provident Dispensary is an institution which plays an important part in the health of the town, for more than 50,000 members—nearly a quarter of the total inhabitants of the borough—are connected with it. Its members consist of servants, working persons, their wives and children, not receiving parochial relief, and who are unable to pay for medical advice in the usual manner. They are admitted when in health on payment of 1/-, and a subsequent payment of 1d. a week. A whole family, however, man, wife, and any number of children, is attended for a weekly charge of 3d.

The St. John Ambulance Association has a very strong centre in Leicester. Since its formation it has given instruction in "first aid" to over 9,000 men and women of all classes of society, and to over 1,400 in nursing. A detachment of the Brigade went to South Africa during the Boer War, and helped in attending to the sick and wounded.

The Leicester Centre is exceptionally well equipped with ambulances and other necessary material. Hon. Sec., Mr. F. H. Turner, 2, Granby Street.

Association for the Blind.—Workrooms and shop, 50, Granby Street. The Association was founded in 1858 to promote the general welfare of the blind. Constant employment is found for blind persons in basket-making, etc., and the sick and infirm blind are looked after. A sighted teacher also visits the blind at their own homes. There is a Cottage Home for aged and infirm blind women at 17, Albion Street. The Wycliffe Society for the Blind has Cottage Homes in Gwendolen Road, N.E.

LEICESTER POOR LAW UNION.

The Parish of Leicester is co-extensive with the boundaries of the Municipal Borough. The population in 1901 was 211,574, the ratable value in 1907 £1,098,917, and the Poor Rate for the year ending Lady Day, 1907, 2/1 in the £. The Poor Law Offices are in Pocklington's Walk. The Union Workhouse is a large brick building in Sparkenhoe Street and is capable of holding 1175 inmates. On January 1st, 1907 there were 912 inmates; 5521 people were receiving outdoor relief at a cost

of £675 weekly; and 244 vagrants sought help.

The Infirmary for the sick is of imposing dimensions, and is situated on rising ground, two miles from the centre of the town, on the Gwendolen Road. It can accommodate 512 patients, and is capable of extension to include another 300. Its total cost, including fittings, was £116,500.

The children chargeable to the Union are not dealt with at the Leicester Workhouse, but, after passing through a Receiving Home, are placed in Cottage Homes at Countesthorpe, some six miles from the town, where in eleven homes, each under the care of foster parents, 270 children are provided for. The colony also contains schools, workshops, stores, infirmary (under the care of a resident nurse), isolation block, and swimming baths, and is under the supervision of a Superintendent and Matron. In addition to ordinary school subjects, the boys are taught farming, gardening, tailoring, shoemaking, painting, and carpentering; while the girls learn dressmaking and needlework, and are prepared for domestic service. The average cost weekly per child is 9/7¼.

EDUCATION.

Leicester is admirably provided with educational facilities. For secondary education there are:—

The Wyggeston Boys' School, Highcross Street. Opened 1878, enlarged 1884.

The Wyggeston Girls' School, Humberstone Gate. Opened 1877.

Both schools supply an excellent High School education at very low fees, ranging from £1 16s. 0d. to £3 per term. (For further account, see page 49).

Alderman Newton's School, situate in St. Martin's, for boys. Fees, 6d. per week. No boy is admitted whose parents do not agree to his remaining throughout the course, by which time he is about 16 years of age. (For account of foundation, see page 43).

Public Elementary Schools.—Leicester has 61 Public Elementary Schools, of which 31 are Council Schools, with accommodation for 32,527 children; and 30 Denominational Schools, providing for 12,533 scholars, or a total accommodation of 45,060 school places. A number of the more

recently erected schools—as, for instance, Narborough Road School—are equipped in the most up-to-date manner and provide for elementary education in its most developed form. To the latter schools a special instruction centre is attached, and there provision is made for various extra subjects, such as woodwork for boys, and cookery, laundry and housewifery for girls. These special instruction centres are attended by scholars from the neighbouring schools.

In the summer months both boys and girls are taken, during school hours, to the different Corporation baths for lessons in swimming. Drawing is given a prominent place in the schools, and the teaching is based on a new syllabus prepared by the principal and staff of the Municipal School of Art. Since its introduction into the Leicester Schools, this syllabus has been adopted in many other towns throughout the country.

The children attending the elementary schools have a number of scholarships open to them—to the Wyggeston Boys' School, to the Wyggeston Girls' School, to Alderman Newton's Boys' School, and also to the Municipal Technical and Art Schools. A number of the holders of these scholarships have subsequently distinguished themselves at the Universities, Medical Schools, Civil Service, and in other ways.

Special Schools.—The Leicester Education Authority was the first in the country, in 1892, to provide special instruction for backward and weak-minded children. Under this provision, the education of the eye and hand is made an instrument to lead up to a small amount of book-learning, with the result that the children are made brighter, happier, and more useful. The special school for mentally defective children occupies a part of the buildings of the elementary school in Willow Street. At this school, the most defective cases (about 40 in number) are taken in hand. In addition special, or "Standard O," classes are held at two of the elementary schools for cases of a less severe type than those at Willow Street. After a period of treatment in these classes, the children sometimes succeed in overcoming their backwardness, and are

able to take their place in the normal school. Children who are deaf mutes are educated at a special school in Short Street, where there are about 30 scholars on the registers. The method of instruction is the "pure oral."

There are 12 Evening School Centres under the control of the Education Committee, and these are attended by 1557 students.

MUNICIPAL TRAINING COLLEGE FOR TEACHERS.—The greater part of the work of this College is now temporarily carried on in Newarke Street, in the buildings formerly used as an elementary school, which have been adapted to meet present requirements. Accommodation is also utilized at the Municipal Technical and Art Schools, the North Midland School of Cookery, and at Bishop Street Schools. Over 1000 teachers and preparatory students, from both the borough and county, are in attendance. Leicester was the first town in the country to establish the collective, or "Centre" system of instructing teachers; this was in 1881. Since the Education Act of 1902, fresh developments have been rendered necessary, and the establishment of a Day Training College for 300 students is under consideration. This College will be provided by an extension of the existing buildings of the Municipal Technical and Art Schools in The Newarke. Plans are now in preparation.

THE MUNICIPAL TECHNICAL AND ART SCHOOLS.—See page 79.

DESFORD INDUSTRIAL SCHOOL, opened 1881, stands on an estate of 138 acres, about seven miles from the town. There are 200 boys in the school, about one-third of whom are from Leicester. It is an excellent school, and stands in the forefront of the industrial schools of the country. The average cost per head is about £24 per annum.

The borough rate for all educational purposes, including higher education and the Municipal Technical and Art Schools, is now (1906) 1/4 in the £.

WORKING MEN'S COLLEGE, Union Street, was founded, in 1862, by the Rev. D. G. Vaughan, seconded by the Rev. E. Atkins, with a view to elevate and educate the adult working men of the town, the motto being, "Sirs, ye are brethren."

At first the work was very uphill, as a taste for study had to be cultivated before the classes were attended by those for whom they were intended, but in the course of half a dozen years progress began to be made. In 1880 a women's branch was started, followed, two years later, by one for youths over 14. There are now over 2000 students, of whom about half are men, 700 are women, and about 300 youths. The classes embrace a large number of subjects, and those are best patronised which are in any way useful to students in their various walks in life.

A special feature are classes on Sunday for Bible study, including Greek Testament. Originally a considerable part of the College was devoted to helping those adults whose education had been neglected, but this class of student is becoming rarer every year, owing to the spread of education. Library and Reading Rooms, a St. John Ambulance Corps, Sick Benefit and Provident Societies, Cyclist and Photographic Associations are some of the auxiliaries of the College. New buildings are in progress in Great Central Street.

THE LEICESTERSHIRE ADULT SCHOOL UNION is a remarkable and growing movement. Originated by the Society of Friends in 1861, it has grown to have no less than 119 schools affiliated, 76 for men and 43 for women, with a total membership of 7000 men and 2400 women. Instruction in religious and general subjects is given by voluntary helpers on Sunday mornings to men. Classes usually commence in the town at 9 o'clock, but in some of the country schools as early as 7-30. The women's schools are held in the afternoon or evening, and are not confined to Sundays. The schools are unsectarian, and have various adjuncts, in the shape of benevolent societies, libraries, athletic clubs, etc. President, Theodore B. Ellis, Esq.

SOCIETIES AND CLUBS.

LITERARY AND PHILOSOPHICAL SOCIETY.—It is not too much to say that the intellectual life of the town has centred round this society for 70 years. It was founded in 1835 by Mr. Alfred Paget and Dr. Shaw. The Society arranges for 12 lectures on alternate Mondays during the winter; usually six

of these are given by well-known lecturers and specialists and six by non-professional lecturers. The work done by individual members is chiefly through the sections of the Society, of which there are six, namely, for the study of literature, geology, botany, zoology and microscopy, entomology, and photography.

The Botany Section has completed, under the supervision of the late Rev. J. A. Preston, an Herbarium of the Flora of the County, which is pronounced to be the "finest County Herbarium in the kingdom." It contains 3000 sheets with 2376 specimens.

During the course of its existence the Society has in many ways promoted intellectual and æsthetic activity in the town, one of the chief of its works being the initiation of the Town Museum in 1840. The Society was also instrumental in prevailing upon the Leicester Town Council to print the Borough Records. It possesses a complete series of the portraits of its successive presidents, from the year 1839 to the present time, a series comprising many of Leicester's best known men.

Leicester Medical Society is said to be the second oldest medical society in England. It had its origin in a Medical Book Society, which first took definite form in the year 1800. Ten medical men were its first members, and others joined as the years went on, until it came to include all the chief medical men of the town. There seems to have been no hitch in its working for the first 25 years, and then, apparently, the Society had some members who were obnoxious to the majority, so to get rid of them it adopted the course of dissolving itself, selling its property, forming a new Society (leaving out the two obnoxious men), and buying back its old property, all in the space of one sitting. One of its earliest members was Dr. Vaughan, father of the celebrated Sir Henry Halford, who was physician to no less than four Monarchs of England. (SirHenry changed his name on coming into property at Wistow). This Dr. Vaughan was grandfather of the Vaughan family so long connected with St. Martin's Church, and of whom the Vaughan porch is commemorative.

About 1846 the Library of the Society was reorganised and placed in charge of the Permanent Library. Headquarters, the Permanent Library, Gallowtree Gate.

THE LAW SOCIETY, founded in 1860, has about 120 members. It has a legal library of about 2000 volumes at 21, Friar Lane. Open 10 to 5 daily.

ARCHITECTURAL AND ARCHÆOLOGICAL SOCIETY (established 1855), to promote the study of architecture and the preservation of interesting architectural remains.

SOME POINTS OF INTEREST IN LEICESTER STREET NAMES.

Bond Street. Was originally "Parchment Maker's Lane," then Parchment Lane, hence Bond Street.

Bowling Green Street. So called from the Bowling Green made here at the expense of the town in 1736.

Buttclose Lane. This was the Butt Close where the public shooting butts were, when archery was practised, and every man was required, under penalty, to shoot with a bow equal to his own height.

Belvoir Street (once Catpye Gardens), *Granby Street*, and *Rutland Street* owe their names to the fact that Sir Wm. Manners owned land abutting on them.

Cank Street. Called Cank-well Street in 1676, because the public (or Kancke) well was at the top of it. Previously called the Shipps' (Sheep) Market.

Carl's Lane. Called after Dr. Samuel Carte, a well-known Vicar of St. Martin's in the eighteenth century.

Conduit Street. At the top of this street, in St. Margaret's Field, was the well from which water was brought in leaden pipes to "The Conduit," in the Market Place, 1612. This was the chief public source of water.

Dannett Street and *Noble Street* are commemorative of the history of Dannett's Hall. This was the 16th century residence of Leonardus Dannett (died 1582). Later it was the home of Dr. Watts, who rebuilt it. The last occupier of the second Dannett's Hall was Dr. Noble. These streets were made out of the site and grounds of Dannett's Hall.

Free School Lane. The Elizabethan Free Grammar School (now a carpet warehouse) stood at the corner of this lane.

Friar Lane, Grey Friars and *Friars' Causeway* recall the fact that those localities were the homes of the Friars in the Middle Ages,

Gallowtree Gate. This led to the gallows which stood at the top of the London Road Hill.

Grange Lane. Here was the "grange" or farm of the Castle.

Holy Bones. So called because in its locality large quantities of animals' bones have been dug up. These were, presumably, sacrificial from the Temple of Janus, which stood close by.

Hotel Street. The "Assembly Rooms," which stand in it, were originally built as an hotel, though never used as such.

High Cross Street. In this street stood the High Cross, the centre of Roman and mediæval Leicester.

Ingle Street, Hawthorn, Alma, Ruby, Rowan,

Ivanhoe, *Sylvan*, *Oban*, and *Newport Streets* have initials which spell the name I. Harrison —the late owner of the land out of which they were cut.

Loseby Lane. A very old street, dating from 13th century, was named after John de Lowesby, a large landowner at that time in that locality.

Mere Road. Originally spelt "Mear." "Mear" denotes a boundary, and for a long time this was the boundary road of the borough.

Newarke. Here was the "New Worke" of Henry, Earl of Lancaster, namely, the beautiful vanished Collegiate Church of St. Mary and the New or Trinity Hospital.

New Walk. Used to be called the "Ladies' Walk."

Peacock Lane. After a piece of ground called the "Pecokke, near Rede Cross."

Pocklington's Walk. This street was cut through the grounds of a house belonging to a Mr. Pocklington, who was fond of walking down a certain straight path of his garden.

Railway Street. Is by the site of the original Leicester terminus of the second railway, constructed by Stephenson, 1832.

Red Cross Street, i.e. Rede Cross Street. (Rede-praying), probably referred to the Rood Cross at St. Martin's (S. Crosse).

Sanvey Gate, i.e., Sancta Via Gate. Along this road the annual religious procession wended its way to St. Margaret's Church.

Southampton Street. Was named after Lord Southampton, who had property here. He was Master of the Quorn Hounds, and for

RUINS ON THE SITE OF LEICESTER ABBEY.

THE MIDLAND RAILWAY STATION.

a time the kennels were where the street now is.

Woodgate. Here the Wood Tax, imposed by Robert de Beaumont, in 11th century, was paid.

Wharf Street. Was formerly Tinklers' Lane.

WALKS AND EXCURSIONS ROUND LEICESTER AND ITS NEIGHBOURHOOD.

STOUGHTON, EVINGTON, THURNBY, AND HUMBERSTONE.

A STROLL through the above villages (all of which are within a radius of four miles of Leicester) forms a very pleasant afternoon's walk. It is, perhaps, best to take the tram from the Clock Tower up the London Road as far as Stoughton Lane. Here leave the main road and turn down the lane, walk past the golf links, and keep straight on until the picturesque Shady Lane is reached on the left. A few minutes' walk under its trees brings us to the church and village of

EVINGTON.

[By crossing the golf links by the footpath, the first stile of which is just beyond the golf house, the same point is reached.]

Evington, or Avintone, as its old name was, once belonged to the Abbey of Leicester. Its church, dedicated to St. Denis, is an old one, and contains in the north aisle windows

some remarkable stained glass of the 14th century. In 1564 the Vicarage was returned as a "peculiar," and in possession of certain privileges, in right of which the Duke of Devonshire held a court in the village for the probate of wills. In 1564, 31 families were registered as living in the village. By the churchyard a hilly lane, at right angles to Shady Lane, leads to the tiny village and church of

STOUGHTON.

We are told that "in the town of Stoughton the Abbot and Convent of Leicester built a most fair and beautiful chapel with a high steeple-spire, the windows curiously wrought with stories expressing the benefactor's alms." It is in the early Gothic style of architecture, and dedicated to St. Mary the Virgin, and it contains various monuments to members of the Farnham and Beaumont families—in particular a fine altar tomb to Thomas Farnham (d. 1562), who was Chancellor of the Exchequer in the time of Queen Mary, and a monument to Sir George Beaumont, the inscription of which is supposed to have been written by Swift, for it speaks ironically of the "English reign of that excellent princess, Queen Anne," and the Dean, who was an intimate friend of Sir George Beaumont, and frequently stayed at Stoughton Grange, was fond of jeering at the un-English proclivities of the Queen. In 1220 Stoughton is described as a Chapelry of Thurnby, to be served by a resident priest supplied by the mother church, and as such it still remains.

There is a large cross in the churchyard, the history of which is unknown. A few steps beyond the church (on the right) gives us a fine view of Stoughton Grange, which, in pre-Reformation days, was the principal grange or farm of Leicester Abbey. After the suppression of the Abbey it was granted to a certain Robert Raynes, and passed, first, to the Farnhams, then to the Beaumonts, and finally to its present owner, Mr. Powys-Keck, through successive marriages. In the last century it was largely rebuilt, and the fine front added.

Retracing our steps, and turning again by the church towards Evington, we take the right hand lane, where the road forks, and find a pretty walk through fields, which ends by a steep ascent in the village of

THURNBY.

Thurnby was not mentioned in the Doomsday Book, what inhabitants there were being included in Stoughton. The present church was built last century to replace a dilapidated ancient one on the same site. When Leicester Abbey was flourishing it had a large granary in this village, and the church was under the Abbey's spiritual care. Thurnby Court is an immense modern building. Passing out of the village by the lane on the left we are soon on the main road leading from Leicester to Uppingham. Still keeping to the left, we turn towards Leicester once more. Two miles further on, where the road bends yet more to the left, there is a short lane on the right which leads to

HUMBERSTONE,

a village with several historical associations. Here, again, the church was under the patronage of the Abbey of Leicester, through the gift of Ernaldus primus de Bosco in 1220, and eastwards of the churchyard stood, in olden days, a "Cell," or dependence of the Abbey, in which six Friars lived, who were under the following obligations of hospitality:—"If a lay brother travelling between the Abbeys of Leicester and Laund arrived at the Cell of Humberstone about eight in the morning, the brothers were to find him a breakfast and a pint of beer, if he arrived at noon he was to have a dinner and beer, if after eight at night he was to be provided with a supper and bed, and to proceed to Leicester *before breakfast in the morning*." When the remains of this Cell were being removed in 1726 it was found to be a matter of considerable difficulty, so substantially and strongly was it built.

The name of this village is derived from a remarkable stone—the Humber Stone—which lies in a field to the north-west of the village. This block is the only stone of the same kind nearer than Charnwood, some 8 or 9 miles distant. How it came there is somewhat of a mystery, but it is usually believed this block must have been derived from the Charnwood Forest, and must have been transferred during the Glacial period. Tradition asserts that a mysterious power prevents the stone from disappearing below the ground, and more than 100 years ago Nicholls, the historian, says that "Notwithstanding great pains have been taken by

a later proprietor of the land to keep it below the surface it defeats his efforts, and rises gradually, though not insensibly."

Back on the main road we are on the line of trams, and one of these will quickly bring us, through Humberstone Gate, to the Clock Tower, in the centre of the town.

THE RAW DYKES AND AYLESTONE.

The road from the centre of the town to the village of Aylestone, about 2½ miles, presents various features of interest. (It is traversed by the electric trams for those who prefer to ride). Passing through Town Hall Square, Bowling Green Street, and the top of Belvoir Street, we emerge in Welford Place, by the statue of John Biggs, an eminent townsman of Leicester in the middle of last century. A short distance along the Welford Road we see the huge walls of H.M. Prison, erected in 1828. On the right a glimpse can be obtained of the Infirmary (see page 100). The road here divides into two, the one on the left runs past the old Cemetery and on to Welford, the one on the right goes to Aylestone. The Cattle Market is next noticeable on the left, and almost immediately opposite are the renowned

RAW DYKES, OR LE ROUGH DYKES,

which are somewhat of a mystery. They consist of grassy ramparts with a huge ditch* or trench, and some assert them to be British remains, while others believe they are of Roman origin. Roman coins and other

*In the recent reconstruction of the tram lines this hollow has been filled up by the surplus soil.

objects have been found in their vicinity. A hundred years ago the ramparts measured 667 yards, but parts have been levelled since then. What the purpose of the structure was it is difficult to say, as from the position in which the ramparts are thrown up they can have been neither for offence or defence to the town. The south gate of the town was about 500 paces from them. The most probable hypothesis is that they are parts of an ancient British Cursus, afterwards occupied by the Romans.

Continuing our way along the Aylestone Road, we have the Freemen's Common on our left, and later the Gas Works on our right, and finally we come to

AYLESTONE,

a village that is now included within the borough boundaries. Its church, dedicated to St. Andrew, dates from the 12th century. The Manor, an ancient one, passed to the Vernon family in 1408, and eventually was inherited by the well-known Dorothy Vernon, of Haddon Hall fame, and she frequently stayed at the Manor House (still standing) with her husband, George Manners. Her son made it his chief home, and records of the christening of several of his children are to be found in the church registers. The present Vicarage stands on the site of the old one in which Charles I. slept before the Seige of Leicester.

KIRBY MUXLOE,

a village 5½ miles from Leicester (M. Ry.), possesses the picturesque ruins of a fortified dwelling house (erroneously called a castle), which was built about 1475 by Sir William Hastings, of Ashby-de-la-Zouch, as a refuge for Jane Shore (so it is said) when Edward IV. died. The building is of red brick, with stone dressings, and three towers and a broad gateway still remain. Tradition says that a wide roadway leading up to the Castle was specially paved for the benefit of Queen Elizabeth when she visited the house. The moat can still be plainly traced round the grounds.

Kirby Muxloe is now becoming largely a residential suburb of Leicester.

LUTTERWORTH.

Lutterworth, which is 13 miles S.W. from Leicester (Great Central Railway), and was the home of John Wycliffe—the protegé and friend of Leicester's great Earl, John of Gaunt—should be visited. It is a small market town, standing high on a tableland almost at the centre of England, for, six miles away, the two Roman roads, the Fosse and Watling Street, cross. On one side of the town is a steep descent to the little brook Swift, of historic memory.

The chief interest of the place centres round the Church of St. Mary the Virgin, where Wycliffe was rector from 1374 to his death in 1384. It has been little altered since those days, and it is easy to picture it as it was when

he was there. The church walls and pillars were as they are at present, with the nave, the two aisles, and the narrow chancel (but without the organ chamber, added last century). At the east end of the south aisle was a small chapel and side altar, where private masses would be said. The side altar was done away with at the Reformation, and in its place is now a carved marble monument to John Wycliffe, but the piscina or stone basin in which the sacramental vessels were cleansed is still there. The chancel had been newly built just before his time, so it would lack the mellow tone of years, and the piscina on the right and the aumbry (or cupboard for the sacramental vessels) on the left are undoubtedly those that he used. On the right is the small priest's doorway through which he daily entered the church. Notice on the north side of the chancel the hagioscope or "squint" through which the people, entering by the north door and shut out from a full view of the chancel, could yet see the Elevation of the Host. The pulpit, though restored, contains parts of the one he used in his vigorous denunciations of the evil practices of his time, and it is a fact of interest that once more several of his sermons, which have lain unread 500 years, in manuscript, have been heard in the church, as they have been preached almost intact by the present rector, Canon Alderson. Wycliffe's sermons have frequent reference to the awfulness of the Day of Judgment, and point must have been given to his words by the fresco painted above the chancel arch,

which still remains. It represents the Day of Judgment—the Last Trump has sounded, and the sleepers roused by the blast are rising from their tombs, kings with their crowns, bishops with their mitres, priests and laymen, and persons of all degrees. On the right the Just rise with glory, on the left the Lost are appalled and frenzied; fire is already consuming some of the coffins, and, adding to the horror, the ground around is strewn with the skulls and bones of those to whom Christian burial was not vouchsafed. The upper part of the fresco, representing Christ seated upon a rainbow throne in the centre, while four angels, two on either side, are sounding the Last Trump, was added at a later date.

Over the north door is a fresco which has always been peculiarly associated with Wycliffe, and was probably painted about his time. It consists of three lifesize figures, supposed to represent Edward III., his wife Phillippa, and John of Gaunt, all friends of the Reformer. The church possesses a valuable relic of Wycliffe, namely, part of his chasuble. The embroidery is faded and threadbare, and it has been much defaced by sacrilegious hands. It is now kept in a glass case in the vestry. A beautiful oak table kept in the church is shown as Wycliffe's, and it is asserted that he wrote his translation of the Bible upon it. It has a remarkable support, running along the centre line, curiously carved with dragons, and was probably used as a dole table. Doubt has, however, been thrown on its

genuine antiquity. It is, nevertheless, true that it was while Wycliffe was at Lutterworth that he completed his translations of the Scriptures into the mother tongue, and thus not only opened the eternal truths to the people, gaining the name of "The Morning Star of the Reformation," but also gave permanence and definiteness to the English language and a literature to the nation. From Lutterworth, too, he sent out his travelling priests to combat the errors of the mendicant friars.

His work ended on December 28th, 1384, when he was hearing Mass, for at the moment of the Elevation of the Host he fell speechless. He was raised, and lifted gently, legend says, into the chair that is still the priest's seat in Lutterworth Church, and carried through the priest's doorway into his rectory, only to be carried back a few days later and laid to rest before the altar of his church. "Admirable," says Fuller, "that a hare so often hunted with so many packs of dogs should die at last quietly sitting in his form."

But the malignity of men, able to do so little during his life, vented itself in contemptible shape after he had been dead for 30 years. His bones were dug up from the chancel, and carried down the hill to where the little brook Swift crosses the road, and there they were burnt, and the ashes thrown into the water. But, as Fuller quaintly adds, "The brook did carry his ashes into the Avon, to Avon Severn, Severn into the narrow seas, then into the main ocean. And thus the ashes of Wycliffe are the emblem of his doctrine which

is now dispersed all the world over." At the Diamond Jubilee a monument was raised to Wycliffe in Lutterworth. It consists of a massive grey granite obelisk, 30 feet high, and stands at the entrance to the town on the Coventry side. No more appropriate record of a Jubilee could have been erected than a memorial to the man who, as Rector of Lutterworth at the first Jubilee of a King of England (Edward III., 1377), so swayed the minds of the nation that Parliament suggested that the fittest way of celebrating the Jubilee year would be to remedy those abuses which he had been the chief instrument in exposing.

ASHBY-DE-LA-ZOUCH.

This is a small market town of nearly 5000 inhabitants, about 20 miles north-west of Leicester by the Midland Railway. Its chief features of interest are the Castle and the Parish Church, with its unique Pilgrim's Tomb.

THE CASTLE is invested with a special meed of interest, since Sir Walter Scott made it the background for the exciting tournament in his novel of Ivanhoe. Nevertheless, the fine pile of ruins that we now see are not actually those of the Castle that existed at the date of the Ivanhoe events. That Castle was erected by Hugh de Grentesmaisnel, a follower of William the Conqueror, and afterwards passed to a certain Alan la Zouch, the first Baron Zouch, whose name is inseparably connected with the town, and was probably suppressed, with many others, by

Henry III., who found these strongholds of insubordinate nobles very inconvenient at times. Finally, the estate was confiscated by Edward IV., and given to his devoted friend, William, Lord Hastings, together with much other land, and in 1476 Lord Hastings built there "a large and fair house and one stone tower of great height, strength, and excellent workmanship," a few remains of the earlier building being incorporated, and the ruins that we see are those of Lord Hastings' house. It was rectangular in shape, enclosing a space which was divided into two courtyards by buildings across it. It had a chapel of fine dimensions (as the ruins testify), which was practically whole in 1730, though now decaying. Some 190 yards away in the fields are the remains of an outpost, called Mount House, of great strength, which was erected to annoy the garrison at the neighbouring house of Cole Orton, just within gunshot. This outpost was connected with the main building by two subterranean passages, now both blocked up.

A century later Mary, Queen of Scots, was confined here for a short time, and in 1617 her son, James I., paid it a royal visit, the expense of which pressed so heavily upon his host that it is recorded—

"The bells did ring,
The gracious King
Enjoyed his visit much.
And we've been poor
E'en since that hour
At Ashby-de-la-Zouch."

In the war between King Charles I. and his Parliament, in 1644, Ashby Castle held out

for the King, and endured a siege of 15 months when it surrendered honourably upon terms. But its day was nearly over, for in 1648 a Committee, appointed by the House of Commons, sat at Leicester todetermine which castles and garrisons in the country should be repaired and which destroyed. And Ashby was one of the doomed ones. It was ordered to be "sleighted" (*i.e.*, one wall destroyed by gunpowder), and thus rendered useless. The Hastings family, in whose possession it has always remained, then took up their quarters at Castle Donington, and the Castle has gradually fallen more and more into ruins.

The Parish Church, dedicated to St. Helen, is close by the Castle, and was built in the reign of Edward IV., about the same time as the Castle. It is in the perpendicular style and well worth a visit, for it contains several fine monuments, one of which, the celebrated "Pilgrim's Tomb," is believed to be absolutely unique. This tomb is in the north aisle, under one of the windows, and consists of the effigy of a Pilgrim lying bare-headed, and with long hair in the fashion of the latter part of the 15th century. The dress, once coloured, is the peculiar garb of a Pilgrim, and the broad-brimmed hat lies behind the head. On the collar are the letters S.S., which show that this Pilgrim was a personage of distinction, since S. stands for Souveraine. But who he was is not known, though it is suggested that he was a brother of the great Lord Hastings, of the Castle.

Other tombs are an altar tomb to Francis,

Second Earl of Huntingdon, K.G., and a monument to Theophilus, ninth Earl of Huntingdon, with a bust of his wife. Lady Selina Shirley, who founded the sect known as the Countess of Huntingdon's Connection. A memorial brass also lies above her tomb in the chancel. The church was restored and enlarged in 1880. Ashby possesses medicinal waters, and its baths were, at one time, of some repute, but a few years ago it was found necessary to close them owing to the insufficiency of the patronage accorded to them.

BELVOIR CASTLE.

Belvoir (pronounced Beever) Castle, the seat of the Duke of Rutland, though rather far from Leicester—27 miles—makes a pleasant day's excursion. Special day tickets are issued by the G.N.Ry. (Belgrave Road) to Redmile, from whence it is only two miles. Brakes meet many of the trains, and thus the Castle is easily accessible.

It is a magnificent pile of buildings, one of the finest mansions in England, and stands high on a hill commanding lovely views over the Vale of Belvoir. The original Castle was built by Robert de Todeni, standard bearer to William I., and belonged to descendants of his family, though not always in the direct line, until 1508. Then, the Earl having no family, it went to George Manners, the son of his sister, and has remained in the Manners family ever since. The Castle was greatly damaged in the Wars of the Roses, but was

rebuilt by Henry II., Earl of Rutland, and completed in 1555. In the war between Charles I. and his Parliament it again suffered severely, and had to be largely restored. At the beginning of the 19th century its restoration was once more taken in hand, and, when nearly finished, a great fire destroyed the major part of it, together with many valuables. But the Duke at once commenced rebuilding, this time on a scale of great magnificence, and the present castellated edifice is the result. The S.E. and S.W. fronts were designed by Wyatt before the fire; the N.E. and N.W. fronts by Sir John Thornton after the fire. The Castle has many features of interest. The chief are :—The Entrance Hall, with figures in armour; in the Regent's Gallery (so called because George IV. occupied it when visiting here as Prince Regent), is some wonderful tapestry, illustrating the story of Don Quixote, also family portraits; the Chapel, with a fine altar piece by Murillo; the Library, with many valuable MSS., as well as books; the Picture Gallery contains paintings by Vandyck, Claude, Rubens, Murillo, Gainsborough, Sir Joshua Reynolds, Teniers, and other great artists, also six carved chairs from the Borghese Palace at Rome; the Dining Room table has a top of white marble carved to represent a table cloth, and the imitation is perfect; in the Elizabethan Saloon is a valuable collection of miniatures; in the steward's room and housekeeper's apartments are to be seen the magnificent plate of the Castle (one gold waiter was made out of the snuff boxes given to the Duke by

Irish municipal bodies); a wonderful silver Punch Bowl, dated 1681, and weighing 1979 ounces, is also shown. The Staunton Tower—the Keep of the Castle—is supposed to be part of the original building of Robert de Todeni. In its basement are the great wine cellars. The gardens are justly celebrated far and wide, and the Spring Gardens in the earlier part of the year attract hundreds of visitors because of their beauty. On Blackberry Hill, in the grounds, stands a Mausoleum, erected in 1828 on the site of an old Benedictine Monastery, and here several members of the Manners family are buried, including the late Duke and Duchess. There is a beautiful marble effigy of the latter, effectively lighted by a golden radiance from coloured windows. Special permission should be obtained to see this. The chief tombs of the family are in Bottesford Church, four miles away, where there are many fine monuments, dating from 1236, including one to two little sons who in 1608 were killed "by wicked practise and sorcerye," for which two women were put to death as confessed witches.

The state rooms of the Castle and the grounds are open every weekday to visitors (with the exception of Christmas Day and Good Friday).

SHEARSBY SPA.

Shearsby Spa is nine miles from Leicester, in the village of Shearsby, adjoining the high road from Leicester to Welford. The waters have similar properties to those at Harrogate,

LUTTERWORTH CHURCH.

VIEW IN ABBEY PARK.

and are efficacious in cutaneous diseases, indigestion, rheumatism, bilious and nervous disorders. There are two baths, and visitors can be accommodated in the Bath Hotel for 4/8 a day. Baths are 2/6 each, or a course of nine for one guinea.

Specific gravity	100.469
Carbonate of iron	Traces
Carbonate of lime	9.743
Carbonate of magnesia ..	6.246
Carbonate of soda	5.581
Sulphate of soda	128.909
Chloride of sodium	245.532
Chloride of potassium	Traces
Hydrosulphide of sodium ..	.275
Iodine and bromine combined	Traces
Total .. 396.366	

THE following account of Charnwood Forest and its environs is principally taken from the quaint description of Leicestershire, by William Burton, published in 1622; the Gossiping Leicestershire Views, by John Throsby, published in 1789 and 1790; the voluminous History and Antiquities of Leicestershire, by John Nichols, published between 1795 and 1811; and the History and Antiquities of Charnwood Forest, by T. R. Potter, published in 1842. These have been supplemented from other sources, and brought up to date.

J. BREEDON EVERARD,
LEICESTER.
1907.

CHARNWOOD FOREST.

"O Charnwood, be thou called the choicest of thy kind,
The like in any place what flood hath hapt to find?
No tract in all this Isle, the proudest let her be,
Can shew a Sylvan Nymph for beauty like to thee."

Michael Drayton, Polyolbion, Song XXVI.

THERE is probably no district in England equally deserving of notice, of which so little is generally known, and of which so little has been written, as Charnwood Forest.

Of moderate extent, possessing no hills of high altitude, nor architectural antiquities of great extent, it has only proved a small attraction to the general tourist. Well known and appreciated by Leicestershire people, it is scarcely known outside the county, except by geologists, to whom its puzzling problems have for years been a great and ever-growing attraction.

The geology of the district is being treated in a separate paper by Professor Watts, but he will probably not think it an unfair trespass upon his domain if the opinions of three earlier workers in the same field are here given, although he may not entirely agree with their conclusions.

William Burton, writing in 1622, after a short general account of Bardon Hill, which he does not think "contains the height of Mount Athos in Greece, whose shadow at a western sun is said to be 700 furlongs long; nor of Atlas or Olympus, whose tops exceed

the clouds; or of the Pike of Teneriffe, one of the Canary Islands, which Patritius affirmeth to be 52 miles high," gives his opinion of the natural cause of hills :—" That a vegetative substance or matter, being naturally united or drawn together, hath, by the force of the sun and other planets, grown to that proportion, and (as some hold) do yet increase."

John Throsby, writing in 1789, says : " The stones taken from the forest rock are of the hardiest kind; the chisel and the mallet have been employed in vain to form them for the purposes of use and ornament. The rock in many places retains the most venerable tokens of old age, its cheeks, if I may be allowed the expression, are furrowed with the storms and tempests of passing ages. It is of a gritty nature, and in some places it possesses veins of fine grey marble. Not a fossil or marine form was ever found in it, although in the neighbourhood, at Barrow-upon-Soar, is found the strongest and most convincing testimony of the truths spoken of in an *old-fashioned book* respecting Noah's flood, when a few beings only of every kind were saved from destruction, and when the rolling of the mighty waters doubtless jumbled together large massy piles of animate and inanimate things which time has petrified, or consolidated into stone, retaining in many instances their natural shape. I will not say that the forest rock existed before the flood, or that it is primeval with the creation of the world, but we may please or rather amuse ourselves with conjecture."

Potter, when examining the dip of the rocks in one of the quarries near Woodhouse, was told by an old quarryman : " Find Judæa and you will find the direction of these rocks ; find the dip and you will find Judæa. This is the case over the whole world, and has been so ever since the Saviour's resurrection."

When Geology had become a more exact science the Forest formed a field for many workers, who more or less advanced our knowledge of it. Amongst these may be mentioned W. Phillips, Sedgwick, Jukes, Howell, Bonney, Maw, Hill, Harrison, Fox-Strangways, Paul, Bennett, and Stracey ; but it was Professor Watts, who, by a careful subdivision of the rocks, brought that knowledge to its present state.

Let us try generally to describe the district which is about to claim our attention.

Situated in the north-west of Leicestershire, in the West Goscote and Sparkenhoe Hundreds, and nearly within a triangle, whose apices are the towns of Leicester, Loughborough, and Ashby-de-la-Zouch, it is a tract of miniature mountain ranges, formed by intrusive, granitic, syenitic and porphyritic rocks, combined with some of the oldest known sedimentary rocks, which lifted their heads above the triassic sea. The actual Forest, as it was known at the time of the Inclosure, is only the central part of this area ; but the geological, topographical and historical aspect of the outer shell is so intimately interwoven with the centre, that it is necessary to consider the tract as a whole.

The general area is shown upon the accom-

panying map, the actual Forest of the Inclosure being shown by a pink tint. Some of the inclosures, particularly Markfield, are not ancient inclosures, but the results of special Acts of Parliament passed in the eighteenth century. The larger area includes the whole or parts of the modern parishes of Ratby, Newtown Linford, Bradgate Park, Ulverscroft, Charley, Markfield, Stanton-under-Bardon, Bardon Park, Whitwick, Gracedieu, Shepshed, Garendon, Burleigh, Nanpantan, Woodhouse and Swithland, and most of these places will come under review. Historically, the surrounding places are the more interesting, because the actual Forest itself has few habitations, and in the past has been used for sport and pasturing.

It is therefore proposed to speak first of the Forest, and then to take a ramble round it. As will, however, be readily understood, this arbitrary division cannot at all times be adhered to.

CHARNWOOD FOREST.

The derivation of the name of Charnwood presents much difficulty; but whatever this derivation is, it will be the same as that of a small lordship within the Forest, Charley, or, as it sometimes used to be written, Charnley. Probably Potter's speculation is as satisfactory as any, when he suggests that it is derived from Quern, a handmill, for which some of the stone would be suitable, and of which one or more specimens have been found.

The name of Quorndon, a village on the outskirts of the Forest, may have had the same derivation.

This Forest, probably, formed part of the ancient Celtic Forest of Arden, which extended from the Avon to the Trent, and it would be part of the hunting-ground of the Mercian Kings.

It is often a matter of surprise that a forest should possess so few trees, most of those now existing within the Forest, apart from the ancient parks, having been planted since the Inclosure ; but we shall see in our perambulation where much of the timber has gone.

Leland states that in his time, about 1535, the Forest "hadde plentye of woode" ; he also noticed what is still true, that "in this Forest is no goode toune nor scant a village." Tradition says, "a squirrel might be hunted six miles without once touching the ground, and a traveller might journey from Beaumanor to Bardon, on a clear summer's day, without seeing the sun,"—evidently somewhat of an exaggeration, but bearing out Leland's statement quoted above. One of the principal hills in the Forest near Charley is still called Timberwood Hill.

As an illustration of the grants made on the Forest, Margaret, the wife of Saiher de Quincy, granted to Stephen Seagrave 140 loads of wood yearly, and feeding for 100 hogs.

The timber burnt for the brewing of the Priors of Ulverscroft, the timber sold by the Duke of Buckingham, and also by Sir William Gordon at Garendon, and that sold by Mr. Herrick at Beaumanor, all point to the Forest at one time having "plentye of woode."

Frequent mention is made in old deeds of small woods within the Forest, but these

probably refer to sanctuaries during breeding time ; Roecliff may have been one of them.

HISTORY.

Prior to the Norman Conquest, any particulars of Charnwood Forest must be almost entirely conjectural, but, such as they are, they require consideration.

The district seems to lend itself to the ceremonies of the Druids, but there is nothing that absolutely points to these priests of the ancient Britons having held sway here—no distinct circles of stones, no well defined Cromlechs. There are, however, some rocks, notably the hanging stone near the Oaks Church, some rocks forming part of the hanging stones near Beaumanor, and some near Whitwick, and a large pile of rocks, mentioned by Potter, at the summit of the hill known as Bawdon or Baldwin Castle, near the supposed site of the lost Andratesbury, which might lend themselves to Druidical rites. There are also some parts of the remains on Beacon Hill, supposed to be of British origin. Such names as Barrow, several times repeated, Buddon, Bardon, Belton, may also have had the same source.

In favour of a Roman occupation, the evidence is somewhat clearer. Lying within a few miles of the important Roman town of Ratæ (Leicester), and having a Roman encampment at Ratby, a village on its outskirts, a Roman road, Via Devana, adjoining it, and possibly the Saltway passing through it, there seems every reason to suppose that a

far-seeing people like the Romans would make use of a place so eminently adapted for defence.

Mr. Potter traced, about the summit of Beacon Hill, certain earthworks, of which he made a plan, and which he considered represented a Roman camp. It is an ideal place for such a camp, as it is said that its signal fires would be observed from no less than six undoubted Roman stations. The height of Beacon Hill is 818 feet.

In 1840 the monks of Mount St. Bernard, ploughing in their grounds near the Monastery, unearthed a large earthen vessel of Roman manufacture, containing about 2000 Roman coins; some fragments of pottery were also found near, together with a small spear-head. Some Roman coins and a small battle-axe were found at the foot of Beacon Hill. A Roman pavement was discovered, in 1722, between Rothley and Swithland; and another, about the end of the nineteenth century, near Rothley Temple. There is also the traditional Altar Stone at Markfield, said, before it mended the road, to be covered with "outlandish letters," in which case it also would probably be Roman.

The people who followed the Romans were unlikely to leave any enduring record of their presence. Danish terminations to the names of many villages on the eastern side of the county, extending as far as Groby, Ratby, and Kirby, showed that these marauders penetrated to the Forest.

To the Saxons we probably owe the open air Swanimote Courts of the Forest, which,

for a long period, settled questions connected with the liberties of the rangers and the commoners' use of the Forest; some of the regulations connected with the latter are wise, if curious. They might not keep any scabbed or infected horses or sheep on the Forest; nor oppress the Common by keeping more upon it in the summer than they can winter upon the ground by which they claim their right; nor kidd or burn gorse. The usual fine was 3s. 4d. It is to be feared that these regulations were not strictly enforced, as at the time of the Inclosure; one small proprietor of only a few acres, near "The Oaks," ran upwards of 2000 sheep upon the Forest.

The Swanimote Courts were held:—For Groby Manor, at Copt Oak (this tree being blown down about 50 years ago); for Whitwick Manor, at the Swanimote Rock, High Cademan (where the Swanimote Oak still exists); and for Shepshed Manor, near Ive's Head.

In the time of Edward the Confessor, the Manor of Barrow, adjoining the Forest, was held by Earl Harold, afterwards for a short time King of England, whose defeat and death at Hastings in 1066 closed the old regime, and brought us nearer to historic times.

In the Conqueror's great record of the general survey of 1086, Doomsday Book, mention is made of Groby, Markfield, Whitwick, Shepshed, Barrow, and Charley, but not of Charnwood Forest. From this we may infer that at the Conquest the Forest

was unappropriated. We have, however, sufficient indication, in the partition of the surrounding manors, and in later deeds, to show how it was afterwards divided.

To Hugh de Grentesmaisnell went the lion's share :—Groby, with its members Bradgate and Swithland, Markfield, Stanton-under-Bardon, Bardon, Whitwick, Belton (which included the site of Gracedieu), Shepshed and Garendon, and the whole of the Forest, except a triangle having one side the Forest boundary to the east—one side running from Snell's Nook along the Earl's Dyke, and through the lost wood of Challenge to Wigmore-pool, near Abbots Oak ; and the third side running between Charley and Ulverscroft to the Forest boundary near the Brand.

This excluded triangle, together with Woodhouse, Beaumanor, Mountsorrel, Quorndon, Barrow, etc., went to Hugh Lupus, Earl of Chester, the Conqueror's nephew.

Thus of the four ancient Manors having privileges over the Forest, three, Groby, Whitwick, and Shepshed, went to Hugh de Grentesmaisnell, and one, Barrow, to Hugh Lupus.

It is probable that in 1086 parts of Groby, Newtown Linford, Markfield, and the whole of Ulverscroft were still in the Forest. Charley had been appropriated, but at the general survey was lying waste. Evidently the Manors round the Forest had been formed before the Conquest, for they were granted by name to the Conqueror's followers, but at what time they were formed does not appear

Neither have we any record when the ancient parks surrounding the Forest were inclosed. These parks were fifteen in number, Groby having four, Bradgate, Bardon, Whitwick, Gracedieu, Garendon, Burleigh, Beaumanor, Quorndon and Swithland one each, and Loughborough two.

These parks, nearly encircling the Forest, owed their origin to it, and probably to some extent prevented further encroachments upon it, as the owners of the parks would value the extended privilege of pasturing on the Forest. In fact, after the division between the two Hughs, the only further serious encroachments prior to the eighteenth century were in favour of the religious houses at Ulverscroft, Charley, Garendon, Alderman Haw, and elsewhere. The lands of the various Barons so frequently passing to the Crown through attainder, it was a simple matter to protect the Forest rights, on a new grant being made; but, with the religious foundations, the lands once acquired remained with them until the dissolution.

The sporting privileges of the Forest were also jealously protected by the adjoining owners. This is shown by a deed made in 1240, granting mutual sporting rights between Roger de Quincy and Hugh d'Albini, Earl of Arundel; and by another agreement made in 1252 between Roger de Quincy and Roger de Somery, Baron of Dudley, who were in each case the representatives at the time of the portions originally granted to the two Hughs. The somewhat sterile nature of the soil would also be a bar to its permanent

inclosure, but probably the most potent factor for retaining it as open land would be the rights and privileges gradually acquired by the adjoining commoners, of free pasture for their horses, cattle, sheep, and hogs ; and so important was this use of the Forest that special places were set apart at The Brand, Sheepshed, and probably Markfield, for marking and examining the stock.

Nichols, following Burton, who bases his opinion upon an old deed, says that Charnwood was disafforested soon after the Conquest, reafforested by Henry I., and finally disafforested by Henry III. Throsby, however, disputes this conclusion, considering that the deed has reference to Leicester Forest. As this disafforesting was principally for relieving the area from the terrible game laws attached to a Royal Forest, it would not materially affect the sport of the adjoining Barons. Whatever the term meant, it was for ever disposed of by a clause in the Inclosure Act of 1808.

Although all Forests were Royal Forests, Charnwood does not possess this affix in the same way that Sherwood or the New Forest does, and if the Kings ever hunted at Charnwood it would probably be as the guests of the adjoining Barons. There is reason to suppose that Edward I., Edward III., Richard II., Henry VIII., and James I. hunted in this Forest. The fortunes of the Forest were so intimately mixed up with those of the adjoining Manors, that its history subsequent to the Conquest will be treated when dealing with those Manors.

Suffice it now to say that the grants to Hugh de Grentesmaisnell passed to the Earls of Leicester, and remained with them until 1205, when, Robert Fitz Parnell dying without issue, this portion of his estates went to his sister Margaret. She married Saiher de Quincy, Earl of Winchester, whose son, Roger de Quincy, further divided it, upon his death, between his three daughters, Margaret, who took Groby to the Ferrars, Helen, who married la-Zouch, and Elizabeth, who took Charley and Whitwick and part of Shepshed to the Comyns.

Nichols states that "in 1278 Hugh le Despenser (created Earl of Winchester in 1322) held Charnwood Forest of the King, paying yearly a pair of gilt spurs"; but, as at the same time the three daughters of Roger de Quincy had considerable rights in the Forest, Potter is probably correct in his conclusion that the privileges of Hugh le Despenser were those of a Rangership.

In 1604, Henry, fifth Earl of Huntingdon, obtained from James I. a grant of the office of Chief Forester of Leicester Forest, with a fee of 2d. per diem, and certain other privileges, which the Earl himself valued at £76 2s. 5d. per annum, also the right of killing eighty bucks and forty does yearly, with certain other sporting rights. This grant probably relates to Charnwood Forest, as the Earl is not mentioned in the Leicester Forest Inclosure Award of 1627, although a relative, Sir Henry Hastings, of Braunstone, is frequently referred to.

In 1749 the Forest was free common for the inhabitants of twenty-six neighbouring towns, villages, and hamlets, and these, being incensed, either by further small encroachments or by the immense rabbit warrens of some of the adjoining owners, began to pull down fences, and, assisted by the Coleorton colliers, raised such a riot that it took two troops of Dragoons to quell it; one of the rioters being unfortunately killed near Warren Hill.

This probably turned men's minds to the advisability of inclosing the common and waste land about, and several small areas in the adjoining townships were inclosed by special Acts of Parliament: Markfield in 1769, Stanton-under-Bardon in 1779, Cropstone in 1781, Swithland in 1798, and Whitwick in 1803.

At this time the state of the Forest would be wild in the extreme, the timber nearly all gone, and the land practically given over to pasturing and rabbit warrens. The roads, where any existed, were of the most primitive kind, the only one of any importance, shown upon "a plan of Charnwood Forest, 1754," given by Nichols, is the "toll" road from Leicester to Ashby-de-la-Zouch, and this on the plan is called "Slough Lane," evidently by a reader of John Bunyan. The plan itself does more credit to the artistic instincts of the draughtsman than to his knowledge as a surveyor, but it is useful as showing the more recent inclosures. So doubtful did the Ashby-de-la-Zouch "toll" road appear to the next topographer, whose map is dated

1756, that he omits it altogether, and gives only one road between Leicester and Ashby-de-la-Zouch, passing Westcotes, Kirby Mullox, Botcheston, Bagworth, and Snibston.

By 1777 either the art of the map-maker or the roads had improved, for a map of Leicestershire of that date, by John Prior, published in 1787, shows the Leicester and Ashby-de-la-Zouch road and the branch road from Markfield to Whitwick nearly as they now exist. The map also gives a very good idea of Charnwood Forest, not greatly differing from the elaborate map attached to the Inclosure Award.

THE INCLOSURE.

Although it still took some time to persuade the owners and commoners of the advantages that would accrue from inclosure, by 1808 this matter was ripe, and the Act of Inclosure received the Royal Assent in that year.

The Commissioners appointed under the Act had to consider the making of roads about the Forest, the allotment of land for chapels, and many other things, and about 3800 claims. These claims were all signed and delivered by 1812, but the final award was not made until 1829.

The roads, about 30 miles in length, cost about £60,000, for the payment of which amount, and for other public purposes, 2556 acres had to be sold. This left for allotment only 8170 acres, and as the claims amounted to upwards of 60,000 acres, it will be readily understood that the Commissioners had not an easy task. They appear, however, to

HANGING STONE, OAKS CHURCH.

SWANIMOTE OAK, WHITWICK.

have given as much satisfaction as arbitrators generally do, although complaint was made about the cost of, and the great length of time occupied by, the proceedings.

Claims were made and allowed for manorial rights to the great Lords of Groby, Whitwick, Shepshed, and Barrow, and also to other manors which were allowed a boundary; to parishes having boundaries, and parishes that were allowed a right of common, both as being members of manors and by prescription; quarries and waterings and sheep-washing places were also allotted to the parishes.

Claims were made and allowed to all land-owners and commoners, great and small, who could prove a right—from the Earl of Stamford, who proved in respect of 6762 acres, to an allotment of less than a perch—but many claims were necessarily disallowed. 6013 acres were allotted to the proprietors and commoners, nearly the whole being freehold; 570 acres to the lords of manors; 1267 acres to the tithe owners, nearly three-fourths of this going to the lay impropriators; 285 acres for the sites and endowments of chapels; and 35 acres for quarries, sheep-washing, and other parish purposes. One of the most amusing of the disallowed claims came from Great Wigston, a village four miles south of Leicester. The claim came from some horse-dealers residing there, who had been accustomed, on their return from Belton fair, to turn their horses into the Forest, awaiting the next chance of selling them.

CHARNWOOD FOREST CANAL.

In 1791 the Leicester Canal Company obtained an Act for making, amongst other things, a canal in Charnwood Forest, with a tramway from Nanpantan to Loughborough, for conveying coals from Swannington and Coleorton pits, and lime from Barrow Hill and Cloud Hill. The canal was to be fed from a reservoir on the Blackbrook. It was a badly devised scheme and badly constructed, and in 1807 the reservoir burst, almost as soon as it was finished, doing great damage. The popular idea is that one boat load of coal was dragged along the half-filled canal by attaching sufficient horses, and that then the canal was abandoned; but Nichols says that the Loughborough and Ashby-de-la-Zouch road "was very little used since the navigation has been completed." This looks as if it were the absurdity of a scheme involving three transhipments of goods, and not the bursting of the reservoir, that caused the stoppage of the canal. Part of the bed of the canal is now used for the Charnwood Forest Railway, but the rest remains an unsightly ditch.

WATER SUPPLIES.

During the past half-century, the rather barren Forest hills have been gradually utilized as gathering grounds for the supply of Leicester and Loughborough, the water flowing from them being purer than from other parts of the county, and the rainfall, having an average of 27 inches per annum,

being rather in excess of the general average of about 25½ inches per annum.

The water from 2860 acres on the western side, about Markfield and Stanton-under-Bardon, is collected in a reservoir at Thornton, having a capacity of 333,000,000 gallons, whence it gravitates to Leicester. These works were completed in 1854. In 1870 works were completed for impounding the water coming from 4400 acres, in the central part about Ulverscroft and Charley, in a reservoir, with a capacity of 556,000,000 gallons, at Bradgate, whence it is pumped to Leicester.

Further works were completed in 1896 for impounding the water from 3500 acres on the eastern slopes, in a reservoir, having a capacity of 490,000,000 gallons, at Swithland, this being also pumped to Leicester.

The north-eastern part, having a gathering ground of 4083 acres, of which 3026 acres belong to Blackbrook, has been secured by Loughborough, whose principal reservoir, completed in 1906, with a capacity of 506,000,000 gallons, occupies the site of the old Charnwood Forest Canal reservoir, which was destroyed 100 years ago.

These works exhaust nearly the whole available supply from the Forest, and Leicester has been obliged to go to a great distance. In conjunction with Sheffield, Nottingham, and Derby, it obtained an Act in 1899 for utilizing the upper waters of the River Derwent, in the north of Derbyshire, and the necessary works are now being constructed.

QUARRIES.

Apart from agriculture, the only other commercial use to which the Forest is put is that of quarrying. Syenite is quarried at Markfield, Cliffe Hill, and near Longcliff, and porphyroid at Peldar Tor and Whitwick, whilst in the ancient inclosures there are extensive quarries at Groby, Bardon, and Mountsorrel.

PLACES OF WORSHIP.

A few words as to the smaller religious houses and churches on the Forest may here be appropriate. The more important of these, connected with the ancient inclosures of Ulverscroft, Charley, Gracedieu, and Garendon, and the chapels at Bradgate and Rothley Temple, will be noticed in their proper places.

Alderman Haw, probably a Saxon inclosure, the position of the lost Audratesbury, 2½ miles north-west of Woodhouse and 1 mile south-east of Charley, now a farmhouse, is on the site of a small hermitage belonging to the Prior of Bermondsey, who in 1220 kept there three monks of the Cluniac order. It had, however, ceased to have any resident monks long before the dissolution, at which time it was granted to Thomas Farnham, the representative of a family who have had property in Quorndon from the twelfth century to the present time.

About the middle of the fifteenth century a dispute arose between the Abbot of Leicester and the Prior of Bermondsey respecting this spot. The Prior alleged there had been a

parish church here, with a font for baptism. On this a view was taken, but the examiners "could perceive no church, nor any remaining foundations of walls of a church, but rather the walls of some hermitage, ox-house or sheep-cote, nor had there been any font for baptism."

Little Haw. There appear to have been two places of this name, one in Woodhouse and the other in Shepshed, but little is known of either. Geoffrey le Despenser had a seat at the one in Woodhouse, and he, about 1235, obtained permission from the Abbot and Convent of St. Mary de Pratis in Leicester to build a chapel there, and to have divine service regularly performed, but not to have the privilege of ringing a bell; a blessed exemption that appeals forcibly to many of the present dwellers in towns.

Holy Well Haw, a small hermitage, founded previously to 1180, near Nanpantan, is just outside the Forest boundaries. It belonged to the Abbot of Garendon, is now a farmhouse, and takes its name from a spring still existing, and anciently supposed to have healing virtues. It ceased to be used as a hermitage long before the dissolution.

There is in the Blackbrook valley, within the Forest, a place called The Hermitage, but on what grounds does not appear. Tradition speaks of it as a house of call for pack trains going south to Leicester.

After the dissolution there was no public place of worship within the Forest, until provision was made in the Act of Inclosure for three churches. The first, known as the

Oaks Chapel, was built near Lub Cloud, and was consecrated on the 18th of June, 1815, whilst the Battle of Waterloo was being fought. The second was at Woodhouse Eaves, and the third at Copt Oak, both being built about 1837. All these three churches have recently been restored by Mrs. Herrick, the present owner of Beaumanor. About 1839 a church was built in the Ecclesiastical Peculiar Exempt Jurisdiction of Groby, which until then had depended on the church at Ratby.

THE MONASTERY.

The most remarkable event in the later religious history of Charnwood Forest is the revival of the ancient faith, which received such a severe blow in the suppression of the monasteries in 1535. In 1835, just three hundred years after the dissolution, there was founded in the Parish of Whitwick, in one of the most romantic spots of the Forest, the Abbey of Mount St. Bernard, belonging to the Cistercian Order of the Benedictines. It was at first on a very small scale, a cottage inhabited by two presbyters and four lay brothers, on a piece of land purchased from Thomas Gisborne, Esq., in the Tin or Tynte Meadows. It was, however, the first Monastery founded in England since the Reformation, and still remains the only one of its kind.

In 1839 the Earl of Shrewsbury gave to the brethren a considerable donation, and they were assisted by the Phillipps de Lisle family, of Garendon and Gracedieu. With

this encouragement, a large Monastery was built, containing a church, cloisters, chapter house, refectory, dormitory, infirmary and guest-house, and was completed in 1844 (except part of the church).

It has a mitred Abbot and Prior and 30 brethren, about equally divided between choir and lay brothers, who have brought into cultivation a large tract of forest land. The monks confine their attention to the management of their own affairs, but are liberal in allowing the outside world to see their buildings and mode of life; the fair sex, however, are not permitted to go beyond the guest-house. The Abbey maintains a hospice for the poor, where any traveller at stated times can have a simple meal, an arrangement which, whilst recalling the charity of the ancient foundations, is not an unmixed blessing to the neighbourhood in these modern days of the "born tired." The brethren are very strict in keeping their own rules—the simplest food, continual labour and prayer, and almost complete silence, even amongst themselves. The Abbot occasionally appears in the outside world, and the guest masters are ever ready to impart information, but the rest do not relax their austere rule of silence.

Thomas Gisborne, who sold the land for the Monastery, had allotted to him at the Inclosure 238 acres of the Forest, and purchased 766 acres more. He built, in a beautiful situation near the Oaks Church, Charnwood Lodge, now occupied by Edwin Joseph Lisle March-Phillipps de Lisle, Esq., an uncle

of the Lord of Shepshed and sometime M.P. for the Loughborough division of Leicestershire.

This completes the short review of the Forest, the part coloured pink on the plan. A reference to this plan will show that many areas had been taken out of it and appropriated before the inclosure. The dates when, and the reasons why, these ancient inclosures were made, can sometimes be traced, but such particulars are wanting in other cases. The subject, however, is of antiquarian rather than of general interest, and space forbids its full discussion here.

We now turn to a consideration of the ancient inclosures embraced by or surrounding the Forest. These are full of the interest that the Forest lacks, the human interest, which appeals to us all more forcibly than any other.

An endeavour will be made to briefly follow the ownership of the various manors and parks from the Conquest to the present time, and to give a few of the incidents connected with the lives of the owners.

A convenient way of doing this is by a perambulation round the Forest, taking each manor, park, and parish in succession.

A SHORT ACCOUNT OF SOME OF THE ANCIENT MANORS AND INCLOSURES ROUND CHARNWOOD FOREST.

The route proposed is to begin with Groby, the nearest point of the district to Leicester, taking with it Newtown Linford and Bradgate on the southern side; Ulverscroft and Charley in the centre; Markfield, Stanton-under-Bardon, and Bardon Park on the western side; Whitwick, Gracedieu, Shepshed, and Garendon on the north; returning by Beaumanor, Woodhouse, Woodhouse Eaves, and Swithland on the eastern side.

GROBY, BRADGATE, AND NEWTOWN LINFORD.

GROBY.

A drive of $4\frac{1}{2}$ miles from Leicester along the Ashby-de-la-Zouch road brings us to the picturesque village of Groby, now principally supported by the quarries. Fifty years ago it resounded to the click of the stocking frame, but this industry has left it, in common with many other Leicestershire villages; thus helping to take the rural residents into the towns.

It is situated in the Sparkenhoe Hundred, and was on the Via Devana; formerly a market town, by the procurement of Henry, Lord Ferrars, from Edward III., but the market was "discontinued long ago."

The old Parish Church of Ratby, one mile away, was used by the inhabitants of Groby until their own small church was built about

1839. From time immemorial, however, there has been an Ecclesiastical Peculiar Exempt Jurisdiction of Groby.

The earliest mention we have of Groby is that, in the reign of Edward the Confessor, certain lands therein were held by Ulfi, from whom is probably derived the name of Ulverscroft. At one time Groby had four parks. Leland speaks of one six miles round, but none of these now remain, unless Bradgate is one. There is, however, a farm lying $1\frac{1}{2}$ miles north-west of Groby, still called Groby Parks, and an old plan of 1670 shows Groby imparked.

In 1086 this Manor, which was of great extent, was held by Hugh de Grentesmaisnell, a favourite of William I., who, upon the death of that Monarch, favoured the claims of the Conqueror's eldest son, Robert Curthose, thus incurring the displeasure of William II., by whom, however, he was pardoned and made High Steward of England. He died in 1094, having a few days before his death taken the habit of a monk of St. Ebrulph's Abbey, in Normandy. He built the first Castle or Keep of Groby, near the entrance to the village, as an outpost to his more important residence at Leicester.

Hugh's son, Yvo, also favoured the claims of Robert Curthose, but was less fortunate than his father, for, acting on the interested advice of Robert de Bellamonte, or Beaumont, Earl of Mellent, he went on, or followed, the first Crusade, and died on the way to Jerusalem. His son, Yvo, remained under a cloud, but the fortunes of the family revived in the

person of the second Yvo's son, Hugh the second, often confounded with the first and greater Hugh.

Meanwhile, much of the property of the Grentesmaisnells, including Groby, had been granted by Henry I. to the above Robert de Bellamonte, who induced the first Yvo to go on his fatal journey to Jerusalem. He was created Earl of Leicester, and, dying in 1118, left his property to his son, Robert de Bossu, second Earl of Leicester, who was succeeded in 1168 by his son, Robert de Blanchmains, third Earl of Leicester.

This Robert married Petronilla, daughter of the second Hugh de Grentesmaisnell, and thus consolidated the interests of the two families; but, rebelling against Henry II., he had his Castle of Groby destroyed, and nothing now remains except the mound on which it stood.

He died in 1189, having been pardoned by Henry II., and his widow built the great nave of St. Mary de Pratis, Leicester. Their son, Robert Fitz Parnell, became fourth Earl of Leicester, but, dying without issue, his inheritance went to his two sisters—Amicia, who married Simon de Montfort, made fifth Earl of Leicester in right of his wife, but with whom we have here no further interest; and Margaret, who married Saiher de Quincy, Earl of Winchester, thus finally separating Groby from Leicester. This Saiher de Quincy, made Baron of Groby in right of his wife, went on the Crusades, and died at Acre in 1219, leaving directions for his heart to be burned and the ashes buried at Garendon.

His wife, Margaret, was also buried at Garendon.

Their son, Roger de Quincy, Earl of Winchester and Lord of Groby, who died in 1264, and was also buried at Garendon, left three daughters: Margaret, who married William de Ferrars, Earl of Ferrars and Derby, whose fortunes we shall now follow at Groby; Helen, who married Alan-la-Zouch, Baron of Ashby; and Elizabeth, who married Alexander Comyn, Earl of Buchan, in Scotland, of whom we shall again hear at Charley.

An apology should be given for this long genealogical digression, but it appears necessary, as we shall again meet several of the characters above mentioned in reviewing the rather complicated history of the Forest and its environs.

William de Ferrars, the second son of Margaret and the Earl of Derby, became Lord of Groby by gift from his mother, and probably began the second house or castle at Groby; the owners of the manor, after the destruction of the first castle by Henry II., having residences elsewhere. This house would be added to by the succeeding de Ferrars, Barons of Groby, who remained in possession of the manor until 1445, in which year died William de Ferrars, the sixth Lord Ferrars of Groby.

Henry, the son of William, the sixth Lord, died during his father's life, having married Isabella, daughter of Thomas Mowbray, Duke of Norfolk, leaving an only daughter, Elizabeth, who carried the manor, by marriage with Sir Edward de Grey, into the Grey

family, with whom it still remains. Nichols traces the Greys back to Fulbert, probably the tanner of history, afterwards chamberlain to Robert, Duke of Normandy, when his daughter Arletta became the mother of a son, known to history as William the Conqueror. This Fulbert was of Croy, in Picardy, from which name Nichols derives that of de Grey. Through fourteen generations, not connected with Charnwood, he was the ancestor of the above Sir Edward de Grey, and also of Robert, a younger brother of Sir Edward, who, in right of his wife, Eleanor Lowe, became possessed of Enville and Whittington, Co. Stafford, to which places we shall again refer.

Some idea of the state of the roads in the fifteenth century may be gathered from the fact that Sir Edward Grey obtained a special dispensation from the Archbishop of Canterbury, in 1446, to have his expected child christened in the chapel of his own manor house of Groby, because of its great distance from the parish church, and the "foulness of the ways thereto," the parish church being Ratby, one mile away.

Sir Edward de Grey was summoned to Parliament as Lord Ferrars of Groby, and died in 1458, leaving a son, Sir John Grey, who married the celebrated Elizabeth Woodville, daughter of the Duchess of Bedford by her second husband, Sir Richard Widvile, or Woodville, of Grafton, Co. Northampton. Elizabeth, who subsequently became a person of such great historical interest, was evidently a woman of personal attraction and

strong mind. Potter gives an extract of one day from her diary, evidently written shortly before her marriage with Sir John Grey, in her nineteenth year:—

"Thursday morning (May 10, 1451). Rose at four o'clock, and helped Katherine to milk the cows, Rachel the other dairy maid having scalded one of her hands in a very sad manner last night. Made a poultice for Rachel, and gave Robin a penny to get her something comfortable from the apothecary's. *Six o'clock*—Breakfasted. The buttock of beef rather too much boiled, and the ale a little the stalest. Memorandum, to tell cook about the first fault, and to mend the second myself by tapping a fresh barrel directly. *Seven o'clock*—Went out with the Lady Duchess, my mother, into the court-yard; fed five and thirty men and women; chid Roger very severely for expressing some dissatisfaction in attending us with the broken meat. *Eight o'clock*—Went into the paddock behind the house with my maiden Dorothy; caught Stump the little black pony myself, and rode a matter of six miles without either saddle or bridle. *Ten o'clock*—Went to dinner. John Grey, one of our visitants—a most comely youth—but what's that to me? A virtuous maiden should be entirely under the direction of her parents. John ate very little—stole a great many tender looks at me—said a woman never could be handsome, in his opinion, who was not good-tempered. I hope my temper is not intolerable, nobody finds fault with it but Roger, and Roger is the most disorderly serving man in our family.

John Grey likes white teeth—my teeth are of a pretty good colour I think, and my hair is as black as jet, though I say it—and John if I mistake not is of the same opinion. *Eleven o'clock*—Rose from the table, the company all desirous of walking in the fields. John Grey would lift me over every stile, and twice he squeezed my hand with great vehemence. I cannot say I should have any aversion to John Grey: he plays prison bars as well as any gentleman in the country, is remarkably dutiful to his parents, and never misses church of a Sunday. *Three o'clock*—Poor farmer Robinson's house burnt down by an accidental fire. John Grey proposed a subscription among the company, and gave a matter of no less than five pound himself to this benevolent intention. Mem., Never saw him look so comely as at this moment. *Four o'clock*—Went to prayers. *Six o'clock*—Fed the poultry and hogs. *Seven o'clock*—Supper at the table, delayed on account of farmer Robinson's fire and misfortune. The goose pie too much baked, and the loin of pork almost roasted to rags. *Nine o'clock*—The company almost all asleep. These late hours are very disagreeable. Said my prayers a second time, John Grey disturbing my thoughts too much the first. Fell asleep about ten, and dreamt that John had come to demand me of my father."

It reads almost too good to be true. Mr. Potter has evidently corrected the spelling; let us hope he did not also revise the text.

Elizabeth and her husband, Sir John Grey, lived together about nine years, the last two

or three as owners of Groby and the Ferrars' house there ; of this house only slight ruins, behind the present house, now remain. Sir John Grey was then slain fighting on the Lancastrian side at St. Alban's in 1461, and his widow returned to her father's house in Northamptonshire, taking her two sons, Thomas and Richard Grey.

With the death of her husband, Sir John Grey, Elizabeth's direct connection with Groby ceased. How she subsequently became the Queen of Edward IV. in 1464, and the mother of the unfortunate babes—Edward V. and his brother the Duke of York, who were smothered in the Tower by command of their uncle Richard III.—and of Elizabeth, who became the wife of Henry VII., is a matter of English history. The Queen died in 1492, forty troubled years after she wrote the diary, and was buried beside Edward IV. in St. George's Chapel, Windsor.

Her eldest son, Sir Thomas Grey, created Earl of Huntingdon, and first Marquis of Dorset, by his stepfather, Edward IV., began new buildings at Groby, of which Leland says : "Emong which works he began and erected the fundation and walles of a greate gatehouse of brike and a tour, but that was left onfinished of him and so it stondith yet. This lorde Thomas erectid also and almost finished ij toures of brike in the fronte of the house as respondent on eche side to the gate-house." Part of this building now remains, and is used as a farmhouse. It is doubtful whether Thomas, the first Marquis, ever finished it, as he was attracted by the more beautiful site at

THE MONASTERY

ULVERSCROFT PRIORY.

must be five tapers, four morters and twenty-four torches." William, the last Lord Ferrars of Groby, was also buried here in 1445.

In 1465 the Priories of Ulverscroft and Charley were united.

For nearly 400 years the brethren lived a quiet, but not a rigorous, monastic life in their sequestered valley, attending to their own affairs, and assisting the poor around; whilst their powerful neighbours at Groby and Bradgate were taking part in the stirring events of those troubled times. Their own time of trial was, however, fast approaching.

In 1525 Henry VIII. gave a lease of certain lands in Warwickshire to Geoffrey Whalley, the Prior, it being suggested that this favour was conferred in return for the hospitable entertainment afforded to Henry, on his being benighted in the Forest; but there is nothing else to show that this King ever visited Charnwood. He, however, showed the Prior some favour, for at the dissolution of the smaller abbeys, etc., in 1534, the order for the suppression of Ulverscroft was rescinded; the act of grace, however, was only for a short time, as it was delivered into the King's hands in 1539, small pensions, varying from £20 to £2, being granted to the Prior and the brethren.

At this time the possessions of the Prior and brethren must have been considerable, the Ulverscroft estate containing 957 acres, with a royalty over about 700 acres in the Forest, and they possessed 300 beasts, 1000 sheep, and 60 swine, and had also property in many other places. They had a right of

hunting and pasturing over parts of Charnwood Forest, and kept up a regular sporting establishment, following fallow deer, roe, foxes and hares, and hawking pheasants and partridges. They had also the right of fishing in Blackbrook, from Charley to Shepshed Mill. Their sporting propensities sometimes brought them into collision with their neighbours, the Lords of Groby and Bradgate, requiring special agreements for the exercise of their mutual rights. They used so much timber ("brewing divers times ten quarters a week"), keeping seven men constantly at work felling and carting, that they had to petition the Marquis of Dorset to grant them some of his woods to fell; giving as a reason the great expense of wood which they had in their chambers, kitchen, and other houses of office whilst the wife of the Marquis lay there.

Just before the final dissolution, Prior Dalby leased the Priory to Sir Richard Cromwell, who sold the lease to Sir Andrew Judd, Lord Mayor of London. This gentleman about the same time purchased the fee simple from Thomas Manners, first Earl of Rutland, to whom it had been granted, for a consideration; and in 1550 sold the whole to the Duke of Suffolk, by whose attainder it reverted to the Crown.

About 1554 Queen Mary granted Ulverscroft and Charley to one of the ladies of her Privy Chamber, Fredeswide Strelley, relict of Robert Strelley, Esq., of Great Bowden, Co. Leicester, when a dispute arose as to the boundary of the lands belonging to the Priory

and the hereditary lands of the late Duke of Suffolk. This was referred to a commission, which took much interesting evidence concerning the manners and customs of the late owners, the Prior and brethren.

In 1565 it passed to Mrs. Strelley's nephews, who sold Ulverscroft in 1609 to Robert Peshall, Esq., whose only daughter, Elizabeth, carried it by marriage to Sir Robert Bosvile. In this family it remained until the time of the inclosure, when 161 acres were allotted by the Commissioners in respect of 773 acres in Ulverscroft; and in 1809, on the death of Mrs. Bosvile, it came to the Rev. A. Lyon Emmerson.

In 1847 the greater part of it had been purchased by Harry Grey, seventh Earl of Stamford, and added to his Leicestershire estates. He, also, in 1861, made the pond lying to the north-west of the Priory for trout fishing, but the position of the old fish ponds and the moat can still be traced.

Considerable ruins of Ulverscroft still remain; interesting parts of the church and its tower, with some beautiful details; the Prior's lodging, now altered into a farm-house; the refectory and other buildings used by the brethren, now incorporated with the farm buildings.

It is probably the most interesting ecclesiastical ruin in the county. The old door of the Priory is now at Thornton Church.

About a mile to the south-west of the Priory, on Chitterman Hill, are the poor remains of a small building, said to date from the fifteenth century. It probably belonged to the Priory,

either as a bailiff's or huntsman's house, or as a small hospital for the monks. For several generations it was occupied by a family bearing the mediæval name of Pilgrim, one of whom, who died in 1733, was steward to the Earl of Stamford.

CHARLEY.

Continuing the journey from Ulverscroft, our nearest way to Charley is to take the Markfield Road, and then by the south-west side of Hammercliff to Copt Oak, half a mile from which, on the Loughborough Road, we reach the ancient inclosure of Charley, entirely surrounded by the ancient Forest of Charnwood.

Another route is to go north-east from Ulverscroft, over Benscliff, and take the main Shepshed Road, which commands beautiful views of the eastern side of the Forest and the county, over Roecliff, Mapplewell, and the Brand. From this road a short detour can be made to Beacon Hill, then, turning westerly, we reach Charley.

This is a beautiful little valley, lying under Timberwood Hill, which has an altitude of 820 feet, an ideal spot for a small Priory, well sheltered, and well watered by a large spring, now running into Charley Mill dam, forming the principal feeder of the Blackbrook. So richly is the valley timbered that the residence of Charley Hall, on or near the site of the Priory, cannot be seen from the public roads.

Some mention of this lordship has already been made in connection with the Forest.

In 1086, Charley belonged to Hugh Lupus, Earl of Chester, whose nephew, Ranulph de Meschines, the third Norman Earl of Chester, conveyed it to Henry I., who granted the lordship to Robert, Earl of Leicester, probably Robert de Bossu, the second Earl. Robert de Bossu, dying in 1168, left Charley to his son, Robert de Blanchmains, the third Earl, who, in the reign of Henry II., built here a small Priory, dedicated to the Virgin, for three Friars Eremites of the Order of St. Augustine. It will be remembered that de Bossu and de Blanchmains founded Ulverscroft for the same Order.

The lordship and patronage of the Priory passed, like Groby and Ulverscroft, to Roger de Quincy, Earl of Winchester and Constable of Scotland, on the death of whose third wife and relict, Eleanor de Vaux, it passed to Elizabeth, the third daughter of Roger. All the three sisters, daughters of Roger, seem to have had an affection for Charley—Elizabeth owned it; Margaret and her husband, the Earl of Derby, Lord Ferrars of Groby, were benefactors; and Helen gave to it lands in Shepshed, and the advowson of Markfield.

William de Ferrars of Groby, the second son of Margaret, was also a considerable benefactor of this Priory, as he was of Ulverscroft.

Our more immediate interest, however, lies with Elizabeth, the owner of Charley.

Alexander Comyn, Earl of Buchan, in Scotland, had assisted Edward I. in his designs against Comyn's native land, and, as a reward, that king gave his royal sanction to Comyn obtaining the hand and land of

Elizabeth, who thus became Countess of Buchan: and the Earl, finding Scotland an undesirable place of residence, settled in England, and Charley was one of his seats. He built himself a house there called Erleshall, of which traces of foundations can still be seen, but nothing of architectural interest.

Alexander Comyn probably died at Charley, but he left three sons, John, Alexander, and William, all of whom were largely concerned in the Scottish wars of Edward I. and Bruce.

It was not John Comyn, of Charley, but John Comyn, of Badenoch, who was murdered by Bruce at Dumfries in 1305, but it apparently was the wife of Alexander, of Charley (sister of the Earl of Fife), who fled from Charley to Scotland and assisted to crown Bruce. She was afterwards confined by that chivalrous gentleman, Edward I., for four years in an iron cage outside the Castle of Berwick, but was subsequently removed by Edward II. to the Monastery of Mount Carmel. Alexander, her husband, was defeated by Bruce, and retired to England to die, probably at Charley.

This lordship, unlike much of the Comyn lands, does not appear to have gone to Alexander's daughter, Alice, who married Henry, Lord Beaumont, for in 1309 Sir William de Ferrars of Groby was the owner of the advowson of the Priory, and it continued in the hands of the Ferrars until it was united to Ulverscroft in 1465.

After the dissolution, Charley appears at first to have had a similar experience to

Ulverscroft. Passing through the hands of Sir Andrew Judd and the Duke of Suffolk, it became the possession of one of the nephews of Mrs. Fredeswide Strelley, and had then a capital mansion. He sold it to Henry Turvile, Esq., of Aston Flamville, who again sold it to Sir Richard Waldron, in whose family it remained until 1647, when it passed by marriage to the Farnhams.

After various changes, the lordship passed, about 1770, to John Vickars, Esq., whose daughter carried it by marriage to George Bosworth, Esq., and in this family it remained until it passed by marriage to the present owner, the Rev. John Martin. At the inclosure 164 acres were allotted to the Rev. William Bosworth in respect of Charley.

Of the Priory, a few interesting features remain, and these have been incorporated in the house built on the site ; a small place in the last century, but enlarged by the present owner into a residence more worthy of the position and its associations.

MARKFIELD, STANTON-UNDER-BARDON, AND BARDON PARK.

Returning to Groby, and then travelling north-west along the Ashby-de-la-Zouch Road, after passing syenite quarries and the old slate pits, we reach, in 1½ miles, the modern house built by the seventh Earl of Stamford, about 1854, and in another 1½ miles the village of Markfield, which was in the ancient Forest.

To the north-west of the main road, near Markfield, within the ancient inclosure of Ulverscroft, lies Ulverscroft Cottage, the pleasant seat of Captain William George Lillingston. This place at one time belonged to Thomas Pares, Esq., a proprietor of Pares' Leicestershire Bank.

MARKFIELD.

The early ownership of Markfield was similar to Groby, but on the partition of Saiher de Quincy's property it went with Whitwick. Tradition speaks of an old stone, called the Altar Stone, existing in a field near this place, which was supposed to have Roman letters upon it; but after the Forest inclosure, or the previous Markfield inclosure, being in the way of cultivation, it was apparently "quarried" for the repair of the roads. This stone is supposed to have given the name Mark-in-field to the parish, but a more reasonable derivation is that Markfield was one of the places where the stock was herded, for marking or branding before being turned into the Forest.

The church is an old one, lying on the southern slope of the Knowl, but of no especial interest; many of the Hoods, from Bardon Park, were buried here.

Quarries have for many years been worked in the syenite of this place, and in the adjoining township of Stanton-under-Bardon, but they are not very extensive.

STANTON-UNDER-BARDON.

Called in an old deed by the more high-sounding title of Stantona de sub Monte Bardona.

Apparently the whole township was granted in 1148 by William de Harcourt to the Abbot and Convent of Garendon, who agreed to receive his body at his decease. This grant, however, could not have included the part known as Horsepool Grange, as John Comyn gave this Grange to the Abbot and Convent of St. Mary de Pratis at Leicester.

At one time there was a chapel here. In 1682 a person was buried in the chapel, and in 1767 Mr. Coulton, Vicar, and William Wood, Chapel Warden, were cited to appear, at the visitation of the Peculiar and Exempt Jurisdiction of Groby, held at Newtown Linford. The two bells of the chapel were purchased by Thomas Boothby, Esq., of Tooley Park, and given to Peckleton. There are now no remains of a chapel, but an effort is being made to erect one, by the Vicar of Thornton, in whose parish the township lies.

BARDON PARK.

"The Dryads that were wont about thy lawns to rove,
To skip from wood to wood, and scud from grove
to grove, [rocks
On *Sharply* that were seen, and *Cadman's* ancient
Against the rising sun to braid their silver locks,
And with the harmless elves on heathy *Bardon's*
height, [night,
By Cynthia's golden beams to play them night by
Exiled their sweet abode, to common bare are fled,
They with the oaks that lived, now with the oaks
are dead."

Michael Drayton Polyolbion."

From Markfield, there are two roads that may be taken to the ancient inclosure of Bardon Park, and both are within the limits of the ancient Forest. One of these is the Ashby-de-la-Zouch road, passing on the way the old Bardon Meeting-house, erected in 1694 by John Hood, Esq., of Bardon Park, for a congregation of Protestant Dissenters, by whom this, or a larger building on the same site, is still used. It is one of the few endowed Nonconformist places of worship in England.

The other road is the main road from Groby to Whitwick, skirting the ancient inclosure of Ulverscroft, as far as Copt Oak, and may probably follow the track used by Hugh de Grentesmaisnell in going from one part of his domains to another.

This was a well-defined road before the inclosure, being one of two main Forest roads shown on a fairly good map made in 1777; the other being the Loughborough to Ashby-de-la-Zouch road.

Bardon Park contains about 1225 acres, and was imparked before 1300. It was

part of the lands granted in 1312 to William Comyn, younger brother of John and Alexander Comyn, in trust for Alice, daughter of Alexander, who carried it by marriage to Henry, Lord Beaumont, in whose family it remained until 1505, when it passed by the marriage of Elizabeth, daughter of William, Viscount Beaumont, to John-de-Vere, Earl of Oxford. It afterwards became the property of Francis, Lord Lovel, on whose attainder it passed to Henry VIII., and he, in 1528, granted it to Thomas Grey, Marquis of Dorset.

Again reverting to the Crown on the attainder of Henry, Duke of Suffolk, it was, in 1613, sold by James I., with Whitwick, to Sir Henry Hastings, of Humberstone (an off-shoot of the Earls of Huntingdon), and Henry Cutler, Gent., of Blackfordby, for a sum of £4000.

It next became the property of Thomas Hood, Esq., son of John Hood, who was probably a tenant of Bardon, and died there in 1558. Thomas Hood died in 1623, and the estate remained in the male line of the Hood family, until the death of William Hood, of the Inner Temple, without issue, in 1835. He left it to his cousin, Robert Jacomb, Esq., with the condition that he should add the name of Hood to his own. Robert Jacomb was descended from Elizabeth, a great-great-grand-daughter of the above Thomas Hood, who married Daniel Danvers, Esq., of Liverpool. She was killed in her house at Bath, by the fall of a chimney, blown down by Byng's wind, on the day that

Admiral Byng was shot, 14th March, 1757. A grand-daughter of this Elizabeth married the Rev. Robert Jacomb, of Laurence Poultney Hill, London.

Several of the Hoods were buried at Markfield, others in Bunhill Fields, they having a London residence in Laurence Poultney Hill.

At the Inclosure, when 148 acres were allotted to Mr. Hood, the Act required the Commissioners to give convenient access to Bardon and a freeboard of 21 feet.

The old house, which stood surrounded by the present moat, below the hill, was pulled down about 1840 by Robert Jacomb Hood, Esq., who at the same time erected a new house on the southern slope of Bardon Hill, now, and for several years past, in the occupation of W. T. Everard, Esq. The summer house, on the top of the hill, was erected about 1743. In 1840 Adelaide, Queen Dowager, visited Bardon Hill, and the place where she had luncheon is still called Queen Adelaide's Bower.

In 1864 the whole estate was purchased from Robert Jacomb Hood, Esq., by William Perry Herrick, Esq., of Beaumanor, and still belongs to Mrs. Herrick. Soon after Mr. Herrick purchased the estate, he made a private carriage road, about two miles long, from Copt Oak to the Ashby-de-la-Zouch road, in order to give a better access to the Hall.

This road takes such a convenient route that the public need continually reminding that it is in no sense a public road.

Bardon Hill is the highest in the county,

the top being 912 feet above the sea, and although Burton was correct in stating that "it contained not the heighth of the Pike of Tenariffe, one of the Canary Islands, which Patritius affirmeth to be 52 miles high," it commands very beautiful and extensive views, not only over the surrounding Forest, but over the whole county of Leicester, and a great part of the adjoining counties of Warwick, Stafford, Derby, Nottingham, Lincoln, Rutland, and Northampton.

Burton says that "within it are great quarries of hard stone," which would be quite true at the present day, the quarries extending over seven floors, having a total depth of about 400 feet.

WHITWICK, GRACEDIEU, SHEPSHED, AND GARENDON.

The district we have now to consider skirts nearly the whole of the northern side of the Forest, stretching from Agar Nook, near Bardon, to Snell's Nook, near Garendon, but how these two places acquired such singular names there is no record to show.

At Copt Oak four roads join, one from Markfield, one from Shaw Lane, an inclosure road,one from Loughborough and Woodhouse, also an inclosure road, and one from Whitwick, the latter of which we now propose to traverse.

At Copt Oak we leave the vicinity of Ulverscroft Lordship, and, skirting Bardon Park, almost immediately pass Birch Hill on the north, and then Charley Hall on the same side, three-quarters of a mile from the road, but so embosomed in trees that it is not visible. One and a quarter miles from Copt Oak we pass Abbots Oak, a country seat of Sir Matthew Ingle Joyce, one of His Majesty's Judges; and, skirting the rugged rocks of High Tor, called also the Warren Hills, where in the riots that preceded the inclosure one of the rioters was killed, in two miles we reach another inclosure road going to Shepshed, and leading also to the modern Abbey of Mount St. Bernard.

We then pass the service reservoir of the Coalville waterworks, to which the water is pumped from a well, about a mile distant, sunk to the lower Keuper sandstone.

Then come the quarries on the wild waste known as Peldar Tor, and in three miles

we reach Whitwick, an important village on the edge of the coal measures, now forming part of the large urban area of Coalville. For the whole distance we have been within the ancient Forest, which has here a width of more than three miles, all full of interest and beauty. Included in this area are High Sharply, near which is the Swanimote Rock, where one of the Forest Courts was held, High Cademan, where the de Lisle family have erected a memorial shrine, One Barrow, Lubeloud, Ives Head, Longcliff, and many other places.

WHITWICK.

Whitwick occupies a somewhat similar position in the north-west of the Forest to that occupied by Groby in the south, but its situation is more beautiful.

It is built on the sides of a deep dingle, which the Gracedieu brook has cut through the Keuper measures, and in this little valley, spoilt, unfortunately, by the Charnwood Forest Railway, the Castle Hill and the ancient church are interesting objects.

Its early Roman history is similar to Groby, Hugh de Grentesmaisnell being the first Norman owner; here, also, he probably built a castle or keep on the Castle Hill. Nichols states that about 1140 it was the inheritance of William de Newmarch, who conveyed it soon afterwards to Robert de Bossu, Earl of Leicester, but he does not state how it came into the possession of de Newmarch. It may have been on one of the occasions when the Grentesmaisnells were on the wrong side

that Whitwick was granted to de Newmarch, as Groby was to Robert de Bellamonte.

Similarly to Groby, it passed through Robert de Blanchmains and the de Quincys; but it went with Elizabeth, the owner of Charley, the youngest daughter of Roger de Quincy, on her marriage, to Alexander Comyn, Earl of Buchan; and its connection with Groby ceased (except for a short period during the heyday of the Marquises of Dorset).

John Comyn, son of Alexander, afterwards became the owner, and in 1293 obtained from Edward I. the grant of a market on Tuesdays, and a fair on the eve and day of St. John the Baptist, and two days afterwards.

In 1312 John Comyn left this town, together with Markfield, Whittington, Botcheston, Newtown Unthank, Bardon Park, and parts of Shepshed and Ratby, to his younger brother, William, in trust for his nieces, the daughters of Alexander Comyn the second. Alice, the eldest of these nieces, married Henry, Lord Beaumont, and took with her this Manor, as well as other places.

As we have already heard of this distinguished man at Charley and Bardon Park, and shall again meet him at Beaumanor, a few words as to his family may not be out of place.

The name of Beaumont appears to be derived from a Viscounty the family held, in a small town of the same name in France, on the river Sarte, in the province of Maine. A daughter of this house married Lewis, second son of Charles, King of Jerusalem

ULVERSCROFT PRIORY, PRIOR'S LODGING.

KIRBY MUXLOE CASTLE.

and Sicily, who was a younger son of Henry VIII., King of France. The issue of this marriage assumed the name of Beaumont, and Henry was the fourth son. He came to England with Eleanor, Queen of Edward I., to which lady he was nearly related, and soon acquired considerable power and possessions, having, amongst other things, a grant of the Isle of Man for life and the custody of the Scotch Marches. When the disputes arose between Edward II. and his Queen, Isabel, Lord Beaumont took the side of the Queen and the young Prince Edward, and taking Edward II. prisoner delivered him to the Queen, by whom he was sent to Berkeley Castle, and afterwards deposed and murdered. For this service Lord Beaumont obtained considerable possessions in Leicestershire, in addition to those acquired through his wife. He also obtained from Edward III., on the attainder of the Despensers, the Barony of Falkingham, Co. Lincoln. He obtained the title of Earl of Buchan through his wife, but does not appear to have used it, and died in 1340, his wife dying in 1349.

Their eldest living son, John de Beaumont, who married Eleanor Plantagenet, sister of Henry, Duke of Lancaster, became Lord Beaumont of Falkingham, Co. Lincoln, and disappears from Whitwick; but a great grandson of his, Sir Thomas Beaumont, Lord of Basqueville, in France, Warden of the Cinque Ports, and Governor of Dover Castle, married Philippa, daughter of Thomas Maureward, Esq., of Overton Quartermarsh, alias Cole Orton, and became the ancestor

of the Baronets of Coleorton (to whom were allotted 302 acres at the Forest Inclosure), and also of the Beaumonts, who at one time owned Stoughton Grange.

Thomas Beaumont, a younger son of this Sir Thomas, Lord of Basqueville, was the ancestor of the Beaumonts of Gracedieu; and Anthony Beaumont, a great great grandson of the same Sir Thomas, living at Glenfield, Co. Leicester, in somewhat humble circumstances, had a daughter, Mary, who married Sir George Villiers, of Brooksby, Co. Leicester, and became the mother of George, first Duke of Buckingham.

After this digression, we must return to Whitwick, which became the inheritance of Thomas, the second living son of Henry, Lord Beaumont, and Alice, his wife.

Through alternate Henrys and Johns it came to Sir John Beaumont, who in 1439 was created Viscount Beaumont by Henry VI., being the first Englishman to possess that title. "In 1448, the same King, out of an affectionate love which he bore to the said John, and his son, William, Lord Bardolph, granted the privilege of return of all writs and all precepts, assize of bread and ale, soc, sac, weyf, ertsey, felons' goods, treasure trove, felo's-de-se, escape, gallows, pillory, wreck of sea, etc.," at various places, including Whitwick, where he also granted them a proper prison.

During the troubled times that followed the death of John Viscount Beaumont, the Manor of Whitwick was a shuttlecock, passing backwards and forwards, as one or

the other became attainted, between the Beaumonts and the Hastings, one of whom, Sir Richard Hastings, of Kirby (afterwards Kirby Muxloe), had married Elizabeth, presumably a sister of John, the first Viscount Beaumont. Sir Richard Hastings, who died without issue, was the grandson of Sir Ralph de Hastings, of Wistow, tenth in descent from Robert de Hastings, portreeve of Hastings, Co. Sussex, steward to William the Conqueror. He married Margaret, granddaughter of Walter de Herle, Chief Justice of the Common Pleas in the reign of Edward I., and by this marriage became the owner of Kirby.

Sir Leonard Hastings, of Kirby, a younger brother of Sir Richard, was the father of William, Baron Hastings, of Ashby-de-la-Zouch, a favourite of Edward IV., and, if report speaks correctly, also a favourite of Jane Shore, for whom he began the manor house or castle of Kirby. It is probable, however, that this house was not finished, when, in 1483, he was beheaded by the Duke of Gloucester, afterwards Richard III. As a beautiful example of the brickwork of the fifteenth century, this ruin is well worth a visit. William's grandson, George, Lord Hastings, was created first Earl of Huntingdon in 1519.

This was a third re-creation of the title; David, grandson of David I., King of Scotland, being Earl of Huntingdon early in the thirteenth century. Through his daughters, David, Earl of Huntingdon, was the ancestor of four claimants to the throne of Scotland

in the time of Edward I., but his son, John the Scot, died without issue in 1244, and the title became extinct. It was revived in the fourteenth century, and again in the fifteenth for the Greys, of Groby.

Part of the Hastings family remained at Kirby until early in the seventeenth century, when they removed to Braunstone, having sold Kirby before 1636 to Sir Robert Banaster, whose descendants sold it to William Wollaston, Esq., of Shenton, Co. Leicester, by whom it was again sold in 1778 to Clement Winstanley, Esq.

It was not until the Hastings family left Kirby that it received the affix of Muxloe, from a little-known family of that name, residing at Kirby Muxloe Frith, many of whom were buried in Desford Church.

Returning to Whitwick, we find it was the property of William, Lord Hastings, from 1467 to his political murder in 1483. It then passed by attainder to Richard III., who granted it to Francis, Lord Lovel, but by attainder it was again in the possession of the Crown in 1485, and was granted by Henry VIII., in exchange for other property, to the Marquis of Dorset, whose son, the Duke of Suffolk, lost it, with his head, in 1554. Again in the possession of the Crown, it was sold in 1613 by James I., with Bardon Park, to Sir Henry Hastings, of Humberstone, and Henry Cutler, Gent., of Blackfordby, for £4000.

In 1642 it had passed to Henry Hastings, fifth Earl of Huntingdon, a direct descendant of the murdered Lord Hastings, in whose family it remained for many years. On the

death of Francis, tenth Earl of Huntingdon, without issue, in 1789, it devolved on his only sister, Elizabeth, third wife of Sir John Rawdon, first Earl of Moira, in Ireland, who was the owner at the time of the Forest inclosure, when he was allotted 268 acres, principally in respect of Loughborough. The Manor passed to his son, Francis Rawdon Hastings, second Earl of Moira, created Viscount Loudoun, in Scotland (probably from his wife being Countess of Loudoun), Earl of Rawdon and Marquis of Hastings, who died in 1836. George Augustus Francis, second Marquis, died in 1844, without issue, as did also his brothers, Pawlin Reginald Serlo, third Marquis, died 1851, and Henry Weysford Charles Plantagenet, fourth Marquis, died 1868, when the English and Irish honours became extinct.

The Earldom of Loudoun went to the sister of the late Marquis, Edith Maud, born in 1833. She married, in 1853, Charles Frederick Clifton, Esq., who assumed the name of Abney Hastings, and was created Baron Donington in 1880. Lady Edith Maud Abney Hastings, Countess of Loudoun, died in 1874, and left directions for her hand to be buried in Donington Park, in a beautiful spot overlooking the rich valley of the Trent, under a monument bearing the old family motto—"I byde my tyme."

The title of Earl of Loudoun went to her son, Charles Edward Abney Hastings, eleventh and present Earl, but the Lordship of the Manor of Whitwick remains with the late Baron's trustees.

There was a church at Whitwick in the reign of Richard I., but the present edifice is later. It is, however, a very ancient and interesting structure, dedicated to St. John the Baptist. The patronage has been in the hands of the reigning Monarch as Duke of Lancaster since 1675. Burton speaks of a tomb in this church, erected early in the fifteenth century, for a giant, Sir John Talbot, of Swannington. He describes it as having "the proportions neatly cut in Alabaster, curiously wrought and polished, of a very great length, curiously engraved and embossed." The monument is still there, but much defaced.

After the destruction of the Castle, the Lords of Whitwick were non-resident, their chief seats being at Leicester, Charley, Beaumanor, Ashby-de-la-Zouch, and Castle Donington, so we have no interesting ruins here to occupy our attention, and may at once continue our journey to Gracedieu, either by taking the more direct road for about two miles through Thringstone, and by the Loughborough main road, or by the more beautiful route over High Cademan, passing the Swanimote Rock and High Sharply. We have the Hermitage and the new Blackbrook reservoir of the Loughborough Corporation on the east, and Spring Barrow Lodge on the west, and reach Gracedieu by turning to the west along the Ashby-de-la-Zouch road.

GRACEDIEU.

"Gracedieu, that under Charnwood stand'st alone,
As a grand relicke of religion,
I reverence thine old (but fruitful) worth,
That lately brought such noble Beaumonts forth.
Whose brave heroic muses must aspire
To match the anthems of the heavenly quire."

Thomas Bancroft, 1639.

The ruins of Gracedieu Nunnery are situated on a small outlier of carboniferous limestone in a pleasant valley, near the Gracedieu brook, and are the remains of a large building.

At the present time these ruins are of considerable extent, partly the remains of the Nunnery and partly of the residence of the Beaumonts, the lay impropriators. They possess some architectural value, but they have suffered from neglect, and, it is also to be feared, at the hands of the "quarry" man; they are, however, interesting and worth a careful study.

Gracedieu would be in the general parish of Belton, but was extra parochial. At the general survey in 1086 Belton belonged to Hugh de Grentesmaisnell, but in 1140 had passed into the possession of Norman de Verdun, together with Newbold Verdun, Lutterworth, Cotesbach, Bitteswell, and other places, though in what manner does not appear. Norman's son, Bertram, married for his first wife Maud, daughter of Robert de Ferrars, Earl of Derby, and in 1190 attended Richard I. to the Holy Land, and was much about the person of the King.

The Manor continued in the family of

Verdun for some years, and passed in 1231 to Roesia de Verdun, who had married about 1224, at the earnest solicitation of the King, one of the Irish Butlers, by whom she had three children; the eldest, John de Verdun, inheriting most of his mother's lands, but not those in Belton, for which she had found another use.

Either Roesia's married life was not a happy one, or she had come to the conclusion, with St. Paul, that women are happier if when single "they so abide," for she returned to her maiden name of de Verdun, and in 1232 paid 70 marks, partly that she should not be compelled to marry again. Between 1236 and 1242 she founded at Gracedieu a Nunnery of the Order of St. Austin, to the honour of St. Mary and The Holy Trinity.

She died in 1248, was buried at Gracedieu, and had a fair monument, which, at the dissolution, was removed to Belton Church, where it is still to be seen, but relegated to a corner, and worn by children's feet.

In addition to Roesia's gifts, Gracedieu had many other benefactors, amongst them John Comyn.

The history of Gracedieu, like many other religious foundations, is uneventful until the dissolution, when, forestalling that enterprising nobleman, Thomas Manners, first Earl of Rutland, John Beaumont, Esq., grandson of Thomas Beaumont, who founded the Cole Orton family, marked it for his own. He was one of the Commissioners appointed to visit this house in 1534, and through an intermediary, Sir Humphrey Foster, bought

the place and its contents at his own valuation. The full inventory is given by Nichols, but here we have only space for one extract :

" The Churche.

" Fyrst, one table of wode ; over the hygh alter certein images, two laten candlestyks, one lamp of laten ; certein oulde formes in our Lady Chappell, certein ould images, one particion of tymber, one lampe, and ould formes in the nunnes quere, one rode, certein images, one particion of wode, and the nunnes stalls, in the belhowse one cloke, certein ould images, ould stoles of woode, one oulde chest, one ould holywater stole of brasse, and the rosse, glasse, ieron, and pavement in the Churche, and the glasse and iron in the steple, £15."

A notable lot, which would make the fortune of a modern curio dealer.

Burton says that the Nunnery was " compassed round with a high and strong stone wall, within which the nuns had made a garden, in resemblance of that upon Mount Olivet, Gethsemane."

John Beaumont did not long possess his bargain in peace, for, after some disputation, it passed in 1552 to Francis, Earl of Huntingdon. John, however, had been made, in 1552, Recorder of Leicester, and in the same year was constituted Master of the Rolls. In 1553 he was made Steward of Ulverscroft, and afterwards Surveyor of Leicestershire ; he was, however, deprived of his office by Queen Mary. His widow, Elizabeth, daughter of Sir William Hastings, in 1574 regained Gracedieu, and it went to her eldest

son, Sir Francis Beaumont, one of the Justices of the Common Pleas. He had a daughter and three sons, the third of whom, Francis Beaumont, born at Gracedieu in 1586, was the dramatic writer, in collaboration with Fletcher.

Gracedieu remained in the Beaumont family until the latter part of the seventeenth century, when it was bought by Sir Ambrose Phillipps, of Garendon, who in 1696 pulled down a considerable part of the Nunnery Church. A short notice of this family, who still retain Gracedieu, will more appropriately appear in the history of Garendon.

The present Manor House at Gracedieu is near the ruins, in a beautiful situation, and was built by Ambrose Lisle March Phillipps, Esq., the present occupier being the Right Honourable Charles Booth, the eminent philanthropist and writer upon social subjects.

SHEPSHED.

Leaving Gracedieu by the main road to Loughborough, we cross the Blackbrook, and then, turning north-east, reach the large village of Shepshed in about three miles. The spelling of the ordnance survey has been adopted, but its ancient name was Sheepshed; this being a Forest Bercarium, a place for folding and washing and marking sheep. The village is now a large manufacturing place of no great interest or beauty, but its associations are of considerable interest. The parish was of large size, extending from Whitwick to Beaumanor, and from Hathern far south into the Forest.

Its church, dedicated to St. Botolph, is of great antiquity, and was in the jurisdiction of Odo, Bishop of Bayeux, the brother of the Conqueror. It was the Church of the Deanery of Akeley, which takes its name from a place situated in this parish. In 1220 the patronage of the church belonged to Leicester Abbey, which also had considerable lands here granted by Robert de Bossu. Saiher de Quincy also gave to the same Abbey the Mill of Shepshed.

The de Quincys, de Ferrars, la Zouch, and the Comyns were owners, as were also the Beaumonts, Hastings, Lovels, and the Marquises of Dorset. After the attainder of the Duke of Suffolk, the part held by him passed to Henry Manners, second Earl of Rutland, by purchase from Queen Elizabeth in 1561, and remained in that family until 1632, when it passed to George Villiers, second Duke of Buckingham, whose father, the first Duke, had married into the Manners family. The Manor was purchased soon afterwards, together with nearly the whole of the freehold, by Sir Ambrose Phillips, in whose family it still remains, and whose monuments are to be found in the church.

In this parish is Ives Head, one of the prominent hills of the Forest, where was a Swanimote Court, and near which is the Hangman's Stone. A legend connected with this stone relates that a poacher, resting against it with a dead deer on his back, was accidentally hanged through the deer slipping backwards; but the more probable account is given by Throsby, and also by Nichols, of a

man named Harris (Throsby in error says Flawn, a probable companion of Harris, who was hanged in 1741 for forgery), who was hanged there in 1730, after an assize trial, for murdering an old man named Warner, who objected to Harris marrying his daughter. A son of Warner seems to have been implicated, but he was transported soon afterwards for deer-stealing, and, returning from transportation, was hanged at the same place in 1732, being then only 25 years old.

GARENDON.

A walk of about one and a half miles from Shepshed brings us to Garendon, the position of the most extensive religious foundation in the neighbourhood of the Forest, but of which little now remains. Some idea may be gained of its importance by the bare statement that its head was a mitred Abbot, with a seat in Parliament, and that it owned the Manors or Granges of Garendon, Dishley, Ringelthorpe, Systonby, Alton, Ravenstone, Stanton-under-Bardon, Burton-on-the-Wolds, Goadby, and Holywell, in Leicestershire, and also Manors in Nottinghamshire and Derbyshire. It was founded in 1133 by Robert de Bossu, Earl of Leicester, under the patronage of the Blessed Virgin; for Cistercian Monks, "who were Benedictines, according to the letter of the rule without mitigation." Amongst other things bestowed by the founder was Michelholm in Lockington for a fishery in the Trent, and a burgess was appointed in the town of Leicester, "who should buy them bread and lodge them." They had also an exceedingly

good trout fishery close at home, in the combined streams of Gracedieu brook and the Blackbrook. It would take much too long to set down here all the benefactions to this Abbey, of which Nichols gives a list of 199 in the time of Edward III., but the benefactors included Ranulph, Earl of Chester, Margaret, wife of Saiher de Quincy, Earl of Winchester, her son, Roger de Quincy, the Ferrars, and the Beaumonts.

Saiher de Quincy went on one of the Crusades in 1219, and died at Acre on the way, after giving directions for his heart to be burned and the ashes deposited at Garendon, which was done. Here also was buried his son, Roger de Quincy, and Saiher's widow, Margaret, at the entrance to the church.

A case which was tried in 1291 between the Abbot of Garendon and John Comyn, son of Alexander, Earl of Buchan, throws some light on the customs of the Forest. John Comyn claimed the privilege of driving all the hogs then in Charnwood Forest once every year, in the time of pannage, into his park, in order to see who had more hogs in the Forest than he ought to have. John evidently found that the Abbot had too many, for he killed 100 of them, and the jury decided that John Comyn had done right.

Soon after the suppression of the Abbey in 1536, at which time there were 14 monks, the church was destroyed, but some of the ruins remained until the Manor was purchased by Sir Ambrose Phillipps, when he had them removed.

In 1540, for a consideration, Henry VIII.

granted the Manor and all the property of Garendon Abbey to Sir Thomas Manners, first Earl of Rutland, the consideration being £2356 5s. 10d.

In this case the Earl of Rutland did not dispose of the property, but occasionally used Garendon as a residence, and it remained in this family for several years. He probably built the old mansion house; a view of it is given by Nichols, but nothing of this can now with certainty be traced. It may have been from Garendon that Catherine, daughter of Francis Manners, sixth Earl of Rutland (though only the great-grandson of the first Earl), married George Villiers, first Duke of Buckingham, whose son, George Villiers, the second Duke, became possessed of Garendon through his mother, and, after certain troubles with Parliament, recovered possession in 1657, and in 1683 sold it, and presumably all the Manors and Granges belonging to it, to Sir Ambrose Phillips for £28,000, having previously swept off £5000 worth of timber. With the Phillipps family the history of the Manor of Garendon, and many adjoining places, has since been so intimately interwoven that it becomes necessary to give some account of them.

Sir Ambrose Phillipps, the purchaser of Garendon, a counsellor of the Middle Temple, was the son of Ambrose Phillipps, of St. Clement Danes, Westminster, who was there buried in 1676. Sir Ambrose died in 1706 and was buried at Shepshed. He had four sons—Ambrose, William, John, and Charles—all of whom were buried at Shepshed, and one

daughter, Mary. Ambrose, the eldest son, died before his father in 1696. William, who succeeded to the property, was born in 1672, and died in 1729, having married a daughter of Samuel Dashwood, Lord Mayor of London, by whom he had three sons and one daughter.

Ambrose, the eldest, who succeeded, died in 1737 without issue, and was buried at Shepshed. He had travelled in Italy, and was so much impressed by Italian architecture that he designed and built the Triumphal Arch, the Temple of Venus, and the Obelisk now in the park. He also designed the garden front of the house, which was built by his brother and successor, Samuel, who was twice married, but died without issue in 1766, and was buried at Shepshed, ending the direct male descent. His widow had a life interest in the property, and died in 1796, having married Sir William Gordon, who, during his term, sold from the estate, by permission of the Lord Chancellor, timber of the value of £9500.

We must now return to Mary, the only daughter of Sir Ambrose, who married Edward Lisle, of an ancient and historic family, settled in the Isle of Wight, since the Conquest, under the name of de Insula. One of them, Brienne de Insula, was made Lord Chief Forester of England in 1220 by Henry III., and successfully helped that Monarch in quelling a rising of rebellious Barons; assisted in taking the Castle of Mountsorrel; and probably received a recompense in lands near that place, as a John de Lisle is mentioned

in connection with Beaumanor in 1330. Another of the family, Sir John Lisle, was sent by Henry VIII. to meet the Emperor, Charles V., when he paid an unexpected visit to Hithe. He also accompanied Henry VIII. to the Field of the Cloth of Gold, and was one of the 21 Knights selected to represent England at that tournament. Another John Lisle joined the Republican party, and was appointed by Cromwell one of the Judges of Charles I. He was afterwards assassinated at Lausanne in 1667. His widow was the unfortunate Alice Lisle, beheaded by the infamous Judge Jeffries, in 1685, at the age of 86, for sheltering two rebels; and it was Edward, her nephew by marriage, who married Mary, daughter of Sir Ambrose Phillipps.

They had 17 children, some of whom died young, and the property descended to Thomas March, the son of Jane Lisle, the fifth daughter, and Thomas March, of London. Thomas, their son, married his cousin, Susan Lisle, daughter of Charles, twelfth child of Edward Lisle and his wife Mary. He assumed the name of March Phillipps in 1796, and died in 1817. His eldest son, Charles March Phillipps, Esq., born 1779, represented the northern division of the county in several Parliaments, and was almost as great a builder as the Ambrose, who died in 1737. He died in 1862, having very much enlarged the estate, and laid out parts of it with much taste. This may be particularly seen at Longcliff and Gracedieu Manor.

He was succeeded by his eldest son,

WHITWICK CHURCH.

GRACEDIEU NUNNERY.

Ambrose Lisle March Phillipps de Lisle, who was born in 1809, and married, in 1833, the daughter of Henrietta Phillipina, Baroness of Lutzow, and heiress to the Barony of the Holy Roman Empire. He was succeeded by his son, Ambrose Charles Lisle March Phillipps de Lisle, who lived principally at Gracedieu Manor; born 1834, died 1883. This Ambrose, who married, first, Frances Victoria, fourth daughter of Sir Richard Sutton, second Baronet, sometime Master of the Quorn, had two sons and one daughter; the eldest, Everard March Phillipps de Lisle, born 1862, is the present owner and Lord of the Manor of Shepshed, and lives at Garendon; High Sheriff of the County 1906-7.

After the Earl of Stamford, the largest claim allowed by the Commissioners for the Forest inclosure came from Mr. March Phillipps. To him was awarded 642 acres in respect of lands and manorial rights situated in Garendon, Gracedieu, Knight Thorpe, Loughborough, Markfield, Shepshed, Hathern, Thringstone, Thorpe Acre, Dishley, and Stanton-under-Bardon, and to this he added 154 acres by purchase. Nearly the whole of the land allotted and purchased still belongs to the De Lisle family.

Quarries have been opened on this estate in and near Longcliff, for working an intrusive mass of syenite.

BEAUMANOR, WOODHOUSE, WOODHOUSE EAVES, AND SWITHLAND.

Leaving Garendon near Snell's Nook, we skirt the boundary of the Forest, passing Holy Well Haw and Nanpantan, where the Charnwood Forest Canal had its termination, and the Loughborough Corporation have a reservoir with a capacity of 29,000,000 gallons. Near this place is a pleasant residence belonging to William Byerley Paget, Esq. Our route is then by the outwoods, passing the Convalescent Home and Pocket Gate and the Hanging Stones, with the bold hill of the Beacon on the south-west, to Woodhouse and Beaumanor.

BEAUMANOR.

"Command the roofe, great Genius, and from thence
Into this house powre downe thy influence,
That through each room a golden pipe may run
Of living water by thy benizon;
Fulfill the larders, and with strengthning bread
Be evermore those bynns replenished.
Next like a Bishop consecrate my ground,
That luckie fairies here may dance their round;
And after that lay down some silver pence,
The master's charge and care to recompence;
Charm then the chambers, make the beds for ease,
More than for peevish pining sicknesses;
Fix the foundations fast and let the roofe
Grow old with time but yet keep weatherproof."

Robert Herrick. Hesperides.

Beautiful as so much of the Forest is, there is only Bradgate Park that can claim to be more beautiful than this. Beacon Hill, with its magnificent views to the north and east, over the rich valleys of the Soar and

the Trent, and the nearer views over the Forest; the rugged hanging stones, with their Druidical flavour, and the quiet beauty of Beaumanor Park, with its mansion and double avenue; the model village of Woodhouse, so carefully tended by the owners; the picturesque village of Woodhouse Eaves, with the Brand; and the woods of Swithland and Buddon, make up a combination which, for its moderate extent, can scarcely be matched in England.

There was never a village of Beaumanor, but the Manor itself was of great importance, and at one time included Barrow, Quorndon, Mountsorrel, Frisby, Woodhouse, and Woodthorpe.

It was granted after the Conquest to Hugh Lupus, Earl of Chester, but soon passed to the Despensers, and remained in that family until the execution of the two Hughs in 1325 and 1326, following their attainder. The Manor, then passing to the Crown, was granted to Henry, Lord Beaumont, and Alice his wife, of whom some account has already been given under Whitwick. He built himself a fair house at Beaumanor, and in 1338 the Chapel of Woodhouse.

John, the fourth Beaumont owner of Beaumanor, entertained there Richard II and his Queen in 1389 and 1390, at which time the King probably hunted on Charnwood Forest. In the Beaumont family the Manor remained until the attainder of William, Viscount and Baron Beaumont, after the battle of Towton Field in 1461, when it was granted to Sir William Hastings, whose

widow retained Beaumanor until her death. This was the Lord Hastings beheaded by the Duke of Gloucester. It then passed to the Grey family, and upon the attainder and execution of Henry, Duke of Suffolk, it was granted to his widow, who took for a second husband her Master of the Horse, Adrian Stokes. The Duchess, who sometimes lived here, died in 1559, and was buried in St. Edmund's Chapel, Westminster Abbey. The children of Mr. Stokes, by his first wife, the Duchess Frances, died young; he married again, but without issue, and died in 1586, leaving the remainder of his lease of Beaumanor to his brother William. In 1592 the Manor was granted by Queen Elizabeth to the Earl of Essex, who sold it in 1595 to Sir William Herrick, this being confirmed by Queen Elizabeth in 1598. His descendants still possess the Manor.

This family has been so long and honourably connected with the town and county of Leicester, that an account of Beaumanor would be incomplete which did not include some more extended notice of it.

A tradition quoted by Dean Swift says that the name af Herrick was derived from Erick, the Forester who unsuccessfully opposed the Conqueror. The Eyricks were for many years living at Great Stretton, Co. Leicester, until Robert Eyrick went to Houghton-on-the-Hill, Co. Leicester, and was living there in 1450. Thomas Eyrick, of Houghton, settled in Leicester, and was a member of the Corporation in 1511. His second son, John Eyrick, or Heyrick, born 1513, was

twice Mayor of Leicester, in 1559 and 1572, died in 1589, and was buried with his wife, Marie, who died 1611, in St. Martin's Church, Leicester. She was 97 years old, and lived to see her children, children's children, and their children to the number of 142. John Heyrick had five sons: Robert, thrice Mayor of, and M.P. for, Leicester, died 1618, buried at St. Martin's, whose descendants were living in Leicester at the end of the eighteenth century, two of them serving the office of Town Clerk; Nicholas, who went to London, and carried on the business of banker or goldsmith, whose sixth child was Robert Herrick, the poet, to whom a monument was erected in Dean Prior Church, Devonshire, by William Perry Herrick, in 1857; Thomas, John, and William. William, afterwards Sir William Heyricke, born 1557, joined his brother in London, and acquired a large fortune He was M.P. for Leicester, and high in the favour of Queen Elizabeth (who sent him on an embassy to the Ottoman Porte) and James I. He held many positions of trust, and in 1596 married Joan May, whose qualities are thus given on her portrait at Beaumanor:

"Art may hir outsid thys present to view,
How faire within nor art or tong can shewe."

Sir William assisted Royalty and others with loans, which he had sometimes much difficulty in recovering; a small one to Anne of Denmark, the Queen of James I., he apparently did not recover.

As an example of a royal begging letter of

the period, the following, written in 1597, from Queen Elizabeth to Sir William Heyricke, is interesting :—

" By the Queene.

" Trustie and wel-belovid, we greete yow well. The contynuall greate charges wch wee have, for the necessarie defence of and preservacon of or dominions and subiectes, are so notorious as neede not to be otherwise declared then may iustlie be conceaved by all our loving subiectes, being but of comon understanding. And therefore, at this presente, finding cause of increase and contynuaunce of suche charges exceeding all other ordinary meanes ; and not mynding to presse or subiectes wth anie presente free gift of monie, but only to be supplied wth some reasonable pencon by waie of loane for onne yeare's space ; wee have made speciall choice of such or loving subiectes as are knowne to be of abilitie, amongst wch, we accompte yow one ; and therefore we require yow, by these presentes, to lend us the some of fyftie poundes for the space of one yeare, and the some to be payd unto Benedict Barnham or Thomas Love, aldermen, by us appointed as collectors thereof, wch we promise to repaye to yow or yor assignes, at the end of one yeare, in the receipte of or exchequer, upon giving of this privie seale subscribed by the said collectors, testifieing the receipte thereof. Geven, under or privie seale, at or pallace of Westmr. the XXVIth daie of January in the XXXIXth year of or raigne.

" Tho. Kery."

The following letter from Thomas Howard, Earl of Suffolk, Lord Chamberlain, shows that Sir William was careful about his sureties in making loans :—

"Sir Wm. Herick, when I first mooved you to lend mee a thousand pounds, I did know that you had money, and I did presume that you wanted no will to doe mee such a kyndness ; but since that it hath fallen out contrary to my expectacons, that you have misliked of the gentlemen I offred, and require such men as if I were determined to labour to gett I need not be beholdinge to you or your brother Bennett, for vppon such bonds there is plenty of money enough to be had evywhere, without labour—theis gentlemen I have offered I know to be sufficient, and will be approved soe, when many townesmen will turn bankerowts—I am resolved to give no other ; therefore send me your resolution what you will doe. All the harm that I have taken is, you have made me forfeit my word and bond uppon assurance to have had this money ; which I will salve as well as I can, and importune you no more. From Whitehall, this 19 of November, 1607—Your friend, T. Suffolke. To my friend, Sir William Herrick, Knight."

A distinguished contemporary of Sir William in the banking business was George Heriot, the goldsmith, who came to England with James I. in 1603, and afterwards founded the noble Heriot's Hospital in Edinburgh. He, however, was born six years after Sir William and died 26 years before him.

Sir William Heyricke died in 1652, and was

buried at St. Martin's, Leicester. He was succeeded by five William Herricks in the direct line, two of whom, in 1753 and 1786, were High Sheriffs of the County. In 1673, William Heyrick, Esq., the elder, and William Heyrick, Esq., the younger, sold to Humphrey Jennens, Esq. (afterwards owner of Gopsall), 6090 oak and ash trees within Beaumanor liberty, on the Forest of Charnwood, for the sum of £1178. The sixth William Herrick, who died in 1832, was succeeded by his nephew, William Perry Herrick, Esq., the only son of Thomas Bainbrigge Herrick, Esq. and Mary, only daughter of James Perry, Esq., of Eardsley Park, Co. Hereford; born in 1794, High Sheriff of the county in 1835, died without issue in 1876, having married in 1862 Sophia, daughter of Henry Christie, Esq., of Lincoln's Inn.

Mrs. Herrick is the present owner, also Lady of the Manor of Beaumanor and of the Manor of Woodhouse.

The first house at Beaumanor appears to have been erected by Henry, Lord Beaumont, about 1330, but, if this is the house shown in Nichols' view, it must have been considerably altered, probably from the style, by Sir William Heyricke. Another house was built about 1725 by the fifth William Herrick, in the square form of the Georges, but this was taken down by the late William Perry Herrick, about 1842, and the present mansion erected.

Within and about the house many interesting objects have been preserved: The

family portraits, including those of Sir William and his wife; the extensive family papers, so largely drawn upon by Throsby and Nichols; and a remarkable chair, bearing date 1690, cut from a single tree, this tree being 34 feet in circumference (the chair is five feet across the top of the horns, which are nearly nine feet high). Upon the chair used to hang a red rose garland, replaced every year; this being sent by Mr. Farnham, as suit and service for Rushy Fields, but after this land was bought by Mrs. Herrick, Mr. Farnham's garland was discontinued, and is now replaced by one from the Beaumanor gardens. There is also a fine old Elizabethan bedstead, in which is incorporated the bedstead upon which Richard III. is said to have slept at the Blue Boar Inn, Leicester, on the night before the Battle of Bosworth Field; and, in an outbuilding, the old coach, built in 1740 at a cost of £73 10s. 0d., for the fifth William, on his marriage with Lucy, daughter of John Gage, Esq., of Bentley Park, Co. Sussex.

Amongst other dues payable to Beaumanor is one pound of black pepper-corns every year from the Charity of Barrow-upon-Soar, collected at the time of Barrow Wakes.

Beaumanor must be a healthy place, as Sir William reached the age of 95, three of the other Williams were over 80, and a Mrs. Herrick, who died in 1749, reached the patriarchal age of 100.

At the Forest Inclosure, Mr. Herrick was awarded 481 acres in respect of lands, tithes, and manorial rights in Beaumanor, Woodhouse, Quorn, Mountsorrel, Loughborough,

and Woodthorpe, and considerable additions of Forest land have since been added to the estates by purchase.

WOODHOUSE AND WOODHOUSE EAVES.

Retracing our steps through Woodhouse, which shows in every part that it is under the immediate eye and care of the Lady of Beaumanor, we pass the church, containing numerous memorials to the Herrick family, originally built in 1338, and very fully restored by Mrs. Herrick in 1878.

Turning south, after leaving Woodhouse, we are in the village of Woodhouse Eaves, so called as being on the edge of the Forest, the boundary of which passes up the main street. Potter thinks that Edward III. may have had a hunting seat here, but the reasons he gives are not very conclusive. It is a very picturesque village, and the church, built in 1837 as one of the Forest churches, has a very bold situation near the top of a slate hill, formerly worked as a quarry.

Continuing our journey southward, after passing the Children's Convalescent Home, we reach the Brand, one of the places where the stock was branded before being sent into the Forest. There would probably be similar places at Markfield and Shepshed, and possibly elsewhere.

The late Alfred Ellis, Esq., built himself a house in this charming spot; it is now the property of Robert Frewen Martin, Esq., the elder brother of the Rev. John Martin, of Charley, and son of the Rev. Robert Martin, at one time Vicar of Ratby-cum-Groby,

Newtown Linford, and Breedon, and owner of Ansty Pastures, which has been in the family for many generations.

At the Brand are a number of disused slate pits, and similar pits are found in the adjoining parish of Swithland, and also at Groby. When they were first worked is not known, but the oldest houses in the district are covered with slates from these pits. They are now all closed, the more easily worked Welsh slates, which can be so cheaply delivered, having supplanted them; but so much are these slates prized for their appearance and durability, that when any old building is now taken down the slates are preserved for re-use.

The production of roofing slates was not the only use to which these quarries were put. From the middle of the seventeenth century the slate slabs of Groby and Swithland have been used as gravestones, in the churchyards of a large part of the county, and, from the hardness and durability of the stone, the inscriptions and ornaments are now as clear and sharp as when the monuments were erected.

During the eighteenth century their beauty of design and delicacy of execution reached an excellence that has never been surpassed, and show that true artists were engaged on the work. Amongst these artists may be mentioned the names of Hind, whose descendants worked the quarries until about the middle of the nineteenth century, and Pollard. This colony of artists, however, began to decline with the advent of the

nineteenth century, and by the middle of the century had practically disappeared.

MAPPLEWELL.

Within a short distance of the Brand is the ancient inclosure of Mapplewell, probably Maypole-well.

When inclosed does not appear, but it was for several years in the ancient family of Whatton, probably an offshoot of the family of Long Whatton, Co. Leicester. The last of this family at Mapplewell, Geoffrey Whatton, had a dispute with his neighbours, William Herrick amongst them, for not paying his levies. In 1673 there was a good moated mansion here, which passed through several owners to Mr. Crompton, a banker, of Derby, and in this family the property remained for some years, but the mansion disappeared. About the middle of the last century it was the property of William Unwin Heygate, Esq., who built a house, and afterwards sold it to Sir William Henry Salt, Bart., son of Sir Titus Salt, the founder of Saltaire, in Yorkshire. It is now the property of B. H. C. Fox, Esq.

At the Inclosure 25 acres were allotted to Mr. Peter Crompton in respect of Mapplewell.

ROECLIFF.

Another interesting place near the Brand is the small Manor of Roecliff, appendant to Swithland.

A small part of it was an ancient inclosure, but probably the greater part was allotted to the Danvers family at the inclosure, and

was sold by them to Sir William Heygate, first Baronet, Lord Mayor of London, 1823, who built a house here, which was enlarged by his son, Sir Frederick William Heygate, and made a very charming residence. When Sir FrederickWilliam Heygate,second Baronet, went to live on his Irish estates, having married, in 1851, the only daughter of Conolly Gage, Bellarena, Londonderry, Roecliff became the property of William Unwin Heygate, Esq., second son of the first Baronet, M.P. for Leicester, Stamford, and South Leicestershire. He died in 1902, leaving as the resident at Roecliff his widow, Constance Mary, daughter of Sir George Howland Beaumont, Bart., of Coleorton. His eldest son is Captain William Howley Beaumont Heygate.

SWITHLAND.

Leaving the Brand, and turning east, we are in the pleasant village of Swithland, its name being possibly derived, as suggested by Potter, from Swith, a cleft slate. It was originally a member of Groby, and passed through the same early vicissitudes as that place.

Granted first to Hugh de Grentesmaisnell, it went to the Earls of Leicester, and then to the de Quincys, Earls of Winchester. In 1255 Roger de Quincy granted divers privileges in connection with Swithland to Robert de Wayleys, probably one of the Walleis of Wanlip. In 1277 Robert de Wayleys, then Lord of the Manor of Swithland, built a chapel there, upon an older foundation, as there was a rector in 1220, the patronage

being with the Abbot of St. Ebrulph. The chapel was restored in 1727 by Sir Joseph Danvers.

The Manor remained in the de Wayleys' family until 1372, when it passed, by his marriage with Elizabeth Wayleys, to Sir John de Walcote, of Misterton, who had two daughters, Margaret and Alice. Margaret married for her first husband John D'Anvers, probably the second John, born in 1393. Both Nichols and the pedigree in Swithland Church, to be hereafter noticed, give her husband as the third John, born in 1452, but a lady whose parents were married in 1372 could scarcely have married a man born 80 years later, and continued the direct line. John d'Anvers was descended from Hugh Danvers, who possessed Frolesworth, Co. Leicester, in the time of Henry I. Frolesworth remained in the d'Anvers family until it passed by marriage, early in the fourteenth century, to Sir John d'Aumari. About the same time, a younger branch of the same stock was settled at Shackerstone, Co. Leicester, and it was from this branch that John Danvers, who married the heiress of Swithland, came. Other branches had property in Oxfordshire and Wiltshire. Swithland remained in the Danvers family until the death of Sir John Danvers, second baronet, in 1796.

Sir John Danvers was the son of Sir Joseph Danvers, created first Baronet in 1746, and died in 1753. He was, for those days, a great traveller, as his tomb at Swithland testifies—

"When young I sayl'd to India east and west;
But aged in this port must lye at rest."

The tomb has other inscriptions and several sculptured representations. It is partly inside and partly outside the churchyard; tradition says, in order that a favourite dog might be buried with his master, but in unconsecrated ground.

Sir John Danvers succeeded in 1733, and in 1755 was High Sheriff of the county. Amongst his other gifts to the church was an organ by Snetzler, which Throsby alludes to as "a little organ, the case of which is painted with roddle," and he goes on: "To this colour it should seem Sir John is wonderfully partial; the seats of the church, the window frames of the church, those of the parsonage house, his own, and doors, all shew roddle, roddle, roddle, roddle." There are several monuments to the Danvers and Lanesborough families in the church, the most remarkable being that erected by Sir John Danvers during his life. It has a very long inscription, beginning, "The Body of Sir John Danvers, Bart., who departed this life about the 18th century, was deposited under the small blue stone at the foot of this monument." Throsby's comment on this, written about 1790, is: "The little stone is certainly there, but Sir John is in London, not food for worms and reptiles, but regaling perhaps over the famed sirloin of old England."

Near Sir John's monument is a brass plate, upon which is beautifully engraved the

pedigree and arms of the Danvers family. It was begun by Sir Joseph Danvers and finished by Sir John.

Throsby evidently did not approve of the political ideas of Sir John, "who" (according to the inscription on his tomb) "gave his support to the assertors of revolution principles; for which I once saw him rewarded . . . he was dragged round the market place by a shouting drunken mob, in his carriage in the Wilkes and liberty style: 'Huzza! Sir John for ever.'" The historian concludes with a verse:

> "For as a fly that goes to bed
> Rests with its tail above his head,
> So in this mongrel state of ours
> The rabble are the supreme powers,
> That hors'd us on their backs to shew us
> A jadish trick at last, and throw us."

It is rather singular that an "assertor of revolution principles" should have taken so much trouble with his pedigree as to have it near his tomb engraved on a brass plate.

In the time of Charles I. there was a John Danvers, Co. Oxford, who was also an "assertor of revolution principles." He was used, and probably despised, by Cromwell, and avoided the penalty due to his principles by dying before the restoration. Clarendon calls him "a proud, formal, weak man."

Sir John, second Baronet, died in 1796, but his daughter Mary had, in 1792, married the Hon. Augustus Richard Butler, descended from Sir Stephen Butler, one of the undertakers in the plantation of Ulster, in the time

PHILLIPPS' MONUMENTS, SHEPSHED CHURCH.

BEAUMANOR.

of James I. He was second son of the third Earl of Lanesborough, added the name of Danvers to his own, and died in 1820, leaving a son, John George Danvers Butler Danvers, who, on the death of his uncle, the fourth Earl, in 1847, unmarried, succeeded to the title as fifth Earl. He died without issue in 1866, and was succeeded by his nephew, John Vansittart Danvers, sixth Earl, who died in 1905, and was followed by his son, Charles John Brinsley Butler, Baron of Newtown Butler, seventh and present Earl.

The residence was near the church until the time of John George Danvers Butler Danvers, afterwards fifth Earl. A view of this residence is given by Throsby, who apologises for the bald appearance of the drawing by stating that he twice "endeavoured to find an eligible spot to take Sir John's house in vain; it is so beset with barns, stables, and something like cowhouses; eight feet high stone walls one within another, pigeon houses and high gates; in some places lofty trees, and a variety of other obstacles, which are mortifying in the extreme to a picture maker."

The present Swithland Hall was built in 1834 upon higher ground, in a pleasant park to the east of the village. In this park is the old market cross removed from Mountsorrel. The old village lock-up, as a picturesque remnant of the past, deserves a passing notice.

At the Forest inclosure, the Hon. A. R. B. Danvers was awarded 261 acres in respect of lands situated in Barrow, Mountsorrel,

Woodhouse, Newtown Linford, Swithland, Rothley, Thurcaston, and Cropston.

We have now completed the circuit of the Forest, but as Mountsorrel has been several times mentioned, it may be of interest to give a short account of this place.

MOUNTSORREL.

Leaving Swithland at the east end, and passing over the south end of the Swithland reservoir, belonging to the Leicester Corporation, and under the main line of the Great Central Railway, we cross a part of Rothley Plain, the 416 acres of which were enclosed under the same Commissioners as Charnwood Forest, and reach the granite hill overlooking the village of Mountsorrel.

This place has a population of 2417, principally supported by the quarries.

Granted to Hugh Lupus, Earl of Chester, who probably built the Castle, about 1080, it passed from Ranulph, grand-nephew of the founder, by grant to Robert Bossu, Earl of Leicester, under strict conditions.

Robert Blanchmains rebelling against Henry II., the Castle passed into the King's hands in 1174. In 1215 Saiher de Quincy, Earl of Winchester, was appointed by King John Governor of the Castle, which he retained on behalf of the rebellious Barons and Lewis, the French King. It was taken for Henry III. by Ranulph de Blondeville, Earl of Chester, afterwards made Earl of Lincoln; who, by command of the King, razed it to the ground, as a "nest of the devil and a den of thieves and robbers," and it

was never again repaired. The Manor passed, by purchase in 1228, to Stephen de Seagrave, Chief Justice of England, whose grandson, Nicholas de Seagrave, obtained from Edward I., in 1292, the grant of a weekly market, which still continues. By 1336 the greater part of it had passed to Henry, Lord Beaumont, the possessions of the Seagraves having gradually declined. In the latter part of the fourteenth century it belonged, as part of the Manor of Seagrave, to the Dukes of Norfolk; one of whom, Thomas Mowbray, Duke of Norfolk, died of the pestilence at Venice in 1399. The Manor descended in 1483 to James, Lord Berkeley, by his marriage with Isabel Mowbray, and in the Berkeley family it remained until the seventeenth century. In 1781 the manorial rights had passed to Sir John Danvers, Bart., the owner of Swithland, and these rights still belong to his descendants, the Earls of Lanesborough.

In 1793 Sir John Danvers removed the old Market Cross to his park at Swithland, and erected the present elegant Market House in its place.

It is now principally known for its granite quarries, which are very extensive and have been worked for many years; they are not mentioned by Burton, but are by Nichols.

Leaving Mountsorrel, we may either return by the direct road to Leicester, or by the one through Rothley and Thurcaston; the latter, being the more interesting of the two, is the one we will take.

In two miles we reach the village of

ROTHLEY.

The principal interest of Rothley is that it contains one of the few buildings in England once belonging to the Knights Templars. Rothley Temple, although much modernized, probably still retains some parts of the ancient buildings, and the chapel, built by the Templars, is in a good state of preservation. This chapel, however, was probably restored by the Knights Hospitallers, who, early in the fourteenth century, succeeded the Knights Templars at Rothley, to whom it had been granted, about 1218, by John de Harcourt, then a Crusader. The grant to the Knights Hospitallers, which had been originally made about 1312, in furtherance of a Bull of Pope Clement V., suppressing the Templars, was confirmed by Edward II. in 1329, and again, in 1333 and 1339, by Edward III., and remained with that body until the general suppression of religious houses.

About 1505 the Commandery came to Sir John Babington, a Knight of Rhodes, of an ancient Northumberland family, and the east window of the chapel, would be altered to its present form, at about this date. After the dissolution, the Manor went to Humphrey Babington, Esq., a brother of Sir John, and in the Babington family it remained until 1845, when it passed to the Hon. Sir James Parker. In the year 1800, his mother being on a visit to Rothley, there was born at the Temple Thomas Babington Macaulay, Baron Macaulay of Rothley, the historian. The present owner is Frederick Merttens, Esq.,

who has added much to the house, and restored the chapel. The soke of Rothley, conferring almost unlimited powers on the owner, is very ancient, coming down from the Saxon times; some of the privileges are still exercised. There was a mill at Rothley before the Conquest, and there are the remains of a Celtic cross in the churchyard.

Continuing our homeward journey, we, in about one and a half miles from Rothley, reach the small village of

THURCASTON.

Thurcaston is chiefly noted as the birthplace of Hugh Latimer, sometime Bishop of Worcester, and martyr in the reign of Queen Mary. Richard Hurd was Rector of Thurcaston from 1756 to 1776, and in 1781 was made Bishop of Worcester, declining the proffered See of Canterbury in 1783.

From the time of the Conquest until the fifteenth century the Falconers were the principal family at Thurcaston, their name showing their connection with the Forest.

We may now continue our homeward journey, and in rather more than four miles reach Leicester.

Other districts in England may have greater picturesque beauty, through being moulded on a larger scale, other districts undoubtedly possess far finer architectural remains, and it is possible that there are places of higher historical interest; but none possess in a greater degree a combination of all these qualities, and none possess higher scientific interest than the few square miles we have been considering in these pages.

To those outside, it is hoped that the brief account here given may stimulate an interest to know more; while to those born or living within the Forest area, it may help to increase the love they cannot but have for Charnwood Forest.

THE STONE ROADS, CANALS, EDGE-RAIL-WAYS, OUTRAM-WAYS, RAIL-WAYS, AND ELECTRIC RAILWAYS IN THE COUNTY OF LEICESTER.

By Clement E. Stretton.

Stone Roads.

When, in the early days of the world's history, the idea took form of placing wheels under travelling vehicles the construction of roadways at once demanded special attention. To overcome the difficulty occasioned by the wheels sinking into soft ground, "stone roads" were at first laid, consisting of two continuous lines of blocks of stone, each being from 2 feet to 6 feet in length, 1 foot in width, and about 6 inches in depth, the distance between the two lines being 4 feet, and the outside width 6 feet, and consequently the wheel gauge being 5 feet outside.

Soon after their conquest of Britain the Romans introduced these "stone roads" into this country in order to enable their war-chariots to keep up a constant communication between their various military camps or centres. The Foss Road passes through the town of Leicester, and in 1870 some of the original stone track was still in use on parts of that road, and miles of the old Roman stones are to-day used in different localities of the town as kerb stones, as in the Market Place, Granby Street and Prebend Street, and it may truthfully be said that thousands

of persons daily walk on these ancient stones without, maybe, any knowledge of their ancient history or original purpose.

Canals.

The next local means of communication was supplied by the Loughborough Navigation Company, under its Act of Parliament, passed on the 14th May, 1766, and amended 2nd April, 1776, the object of this Company being to improve the River Soar and render it navigable for boats between the river Trent and the town of Loughborough. The capital required was small, only £7000, and the money was raised in 70 shares of £100 each. The work was completed at the close of the year 1778, and early in 1779 the Canal Directors and a number of visitors in a special boat, followed by a boat-load of coal and goods, journeyed over the new canal from the Trent to the dock at Loughborough.

The traffic gradually increased, and "cheap coal" at Loughborough soon commenced to add to the local trade. So successful did this canal undertaking prove that at one time a £100 share was worth no less than £4800, or the enormous sum of £4700 above par!

Ancient Edge-Rail-ways.

During the year 1785, it was decided to lay down an Outram-plate-way from the dock at Loughborough to Nanpantan, a distance of three miles, but this system of plate-way had to be abandoned, as the Road Commissioners would not permit a ledge to project upwards in their road.

William Jessop, the engineer, then designed the flanged wheel, and thus introduced the greatest of railway improvements. The line was made as an "edge-rail-way," the gauge or width being 5ft. outside. The fact that Jessop in June, 1789, measured the gauge of the railway *outside* as 5 feet, and that his rails were *included* in the gauge measure, whereas to-day we *exclude* the width of the rails, and measure *between* the rails, is why the railways at the present time are laid upon the 4 feet 8½ inch inside gauge.

The Nanpantan line (now disused) was the first edge-rail-way in the world, the first on the 4ft. 8½in. gauge, and also the first to have the flanged wheel. Without Jessop's flanged wheels the railways of to-day would not be possible.

The Duke of Rutland in 1793 had the Belvoir Castle "edge-rail-way" constructed to convey coal from the Grantham Canal to the Castle. This line is still in use, after 114 years, and is the oldest example of Jessop's flanged wheels to be found in the world.

By an Act of 1791, power was granted to the Leicestershire Canal Company to make a navigable communication from the north end of the town of Loughborough to the West Bridge at Leicester; to take over the Loughborough and Nanpantan line (already referred to); and to construct the Charnwood Forest Canal to Barrow Hill, Cloud Hill, and Thringstone, together with branch railways to the collieries at Swannington, Coleorton, and other local coal pits and lime works.

On Monday, 27th October, 1794, two boat loads of coal arrived at the Navigation Wharf, Belgrave Gate, Leicester; the one boat carried Derbyshire coal from the Erewash Valley, and the other Leicestershire coal, brought by rail and canal to Loughborough and thence by canal to Leicester.

The Charnwood Forest Canal was a communication between two "edge-railways," and was known as a "water level." A "float" was employed, upon which two sets of railway rails were laid, so shaped as to come close up to the dock ends. At Thringstone and Barrow Hill the loaded railway waggons were run on to the float, and at Nanpantan they were pulled off on to the railway, which conveyed them to Loughborough, where the coal was loaded into boats. This ancient system of conveying trains on floats is used in America to-day for both passenger and goods traffic, and the system of through boxes for luggage from London to Paris, and from St. Pancras to the north of Ireland, via Heysham, is the same in principle. At the close of the year 1799 the Charnwood Forest Canal burst and all the water was lost; it has never been repaired and lies a disused route to this day. The true cause of the disaster was never known, but on three previous occasions leaks, evidently cut by a spade, had been discovered, which led one of the Canal Directors to remark: "If only that spade could speak and say what it knows about this business!" In 1848 an Act was passed to enable the land occupied by the former canal to be sold. The failure of the

canal shut the Leicestershire coal out of the local market, and so it remained for 32 years.

Under the powers of an Act of 1791 the Leicester and Melton Mowbray Canal Company, generally known as the Wreke and Eye Navigation, constructed a water way from the Leicester Canal at Syston to Melton Mowbray. The Oakham Canal Company opened its route from Melton Mowbray to Saxby Bridge in November, 1800, and completed the work to Oakham in January, 1803. In 1845-6 Parliament allowed the Midland Railway Company to cut through the Melton Canal, and to purchase the Oakham Canal and close it; thus the valuable water-way from Syston to Oakham was lost to the public, and the traffic diverted to the Syston and Peterborough railway.

Ancient Outram-Ways.

The Ashby-de-la-Zouch Canal Company was incorporated on the 9th May, 1794, and constructed 30 miles of canal from near Ashby to the Coventry Canal at Bedworth, Warwickshire, and 20 miles of Outram-way from near Ashby to Swadlincote, Church Gresley, Cloud Hill, and Ticknall. The plate-way consisted of cast iron plates 3 feet long, having an inside ledge to keep the flat wheels on the track; the plates were laid by men known as "plate-layers," a term still used. The first portion of plate-way was opened from Ticknall to Lount in June, 1799, and the whole 50 miles of canal and plate-ways completed 1st May, 1805.

For many years the track introduced by

Mr. Outram was known as "Outram-way," but now we omit the two first letters of the inventor's name, and refer to the system of flat wheels and flanged plates as "tramway."

Four miles of Outram-way from Ticknall to the tunnel house (two miles from Ashby) remains to-day as it was in 1799. In 1846 Parliament sanctioned the sale of the Ashby Canal and Tramways to the Midland Railway Company, who have diverted the traffic to the Leicester and Burton and Ashby and Nuneaton lines, with the result that the canal now carries very little traffic, and although the Act of Parliament requires the canal to be kept open, this is of no value to Ashby, as the tramway from that town to the canal was removed in 1874.

The Leicestershire and Northamptonshire Union Canal Company, under its Acts of 1793 and 1805, constructed its navigation from the junction with the Leicester Canal property, under the centre of the West Bridge, Leicester, past Aylestone, Kilby Bridge, and Foxton to Market Harborough; and by virtue of an Act of 1810 the Grand Union Canal Company formed a junction at Foxton, and thus gave Leicester a through communication with London and the river Thames.

At Foxton a flight of no less than ten locks had to be constructed in order to overcome a difference of 75 feet in the levels of the two canals. These locks were replaced in 1900, upon purchase by the Grand Junction Canal Co. of the Leicestershire and Northamptonshire Union and Grand Union Canal Companies, by a most important device for

overcoming the delay in time and loss of water. A vast tank of water on wheels, provided with doors, is drawn up and down an inclined railway. When a boat, say at the top, has been floated into the tank, doors are closed, and the tank is lowered down the incline; other doors are then opened, and the boat floats out into the lower canal, as one engineer remarked, "without knowing anything about it."

Modern Steam-worked Railways.

So far the Canal Companies had had matters pretty much in their own hands; they charged high rates, performed the work slowly, paid big dividends, and so lightly considered the traders that the time arrived when "something must be done."

In 1828 the Leicestershire coal owners asked the owners of the disused Charnwood Forest Canal to lay down rails in the old canal bed to enable coal to be sent from Whitwick, Swannington, etc., to Loughborough, so that boats could bring it forward to the West Bridge Wharf at Leicester. The reply was, "No, decidedly no."

Then said Mr. William Stenson, the senior partner in the Whitwick Colliery, "Our carting beats us, but I see a way to relief if we can but form a railway company. I've tried the ground with my theodolite and find no difficulty in the making of a railway."

The route Mr. Stenson tried was from Swannington, via Coalville, Bardon Hill, Bagworth, Merrylees, Desford, Ratby and

Glenfield to near the West Bridge at Leicester.

To Mr. Stenson thus belongs great credit; he suggested the line and the route, and he also induced Mr. John Ellis, one of the best known and highly respected men of business in the town of Leicester, to take an interest in the scheme.

Mr. Ellis inspected the Liverpool and Manchester Railway, bringing back the great engineer, George Stephenson, the father of the modern railway system, and his son Robert. A meeting was held in the "long-room" at the Bell Hotel, Leicester, at which Mr. Ellis presided, and the thing was done. The Leicester and Swannington Railway Company lodged its Bill and plan in 1829, obtained its Act in 1830, began the work during that year, opened its railway from West Bridge station to Bagworth on the 17th July, 1832, and completed the portion from Bagworth to Swannington in 1833.

Thus the dictation of the Canal Companies in Leicestershire was broken down, and "cheap coal" from the local pits caused trade to increase to an extraordinary extent; in fact, it may be said the opening of the Swannington Railway laid the foundations upon which the trade of Leicester has been built. The new railway soon paid 5, 6 and 8 per cent. on its £140,000 capital, whilst the £100 canal shares dropped quickly from £4,800 to only face value.

The Swannington line was in 1846 made a part of the Midland Railway, but the original shares to this day bring in 8 per cent. guaranteed preferential dividend in

accordance with the agreement of 1845.

During the years 1832-3 several private owners constructed branch railways to connect with the Swannington Railway. For instance, Lord Stamford made the Groby branch to his quarries; Lord Maynard one to his Bagworth Colliery; and other branches were made to Ibstock, Snibston, Whitwick, and the Swannington Collieries.

Sir George Beaumont formed the Coleorton Railway Company to connect the Ashby Outram-way with the Swannington line, and in 1834 the Railway Company opened the Soar Lane Wharf at Leicester, where a draw bridge, designed by Robert Stephenson, crosses the canal. This bridge, although extensively repaired, is still in use.

On the 5th May, 1840, the Midland Counties Railway Company opened its new railway from Derby, Nottingham and Trent junction, via Loughborough, to Campbell Street station, Leicester, and on the 30th June, 1840, the continuation from Leicester, via Wigston, to Rugby was completed.

The 1st July, 1840, was a great day in railway history, as through trains commenced to run from York, Hull, and Leeds, via Derby, Leicester, and Rugby to the Euston Square station, London, and Leicester thus enjoyed excellent communication.

The present Midland Station on the London Road, opened in 1892, includes the site of the original station of 1840, which had its frontage in Campbell Street.

On the 10th May, 1844, the Midland Counties Railway became amalgamated with

two others, and the present Midland Railway Company was incorporated in its stead.

This new Company constructed the Syston, Melton, Oakham, and Peterborough line, the portion to Melton being opened on the 1st September, 1846, but the work was not completed till 1st May, 1848, the delay being due to the objection of Lord Harborough at Saxby. His Lordship had an army of his men to prevent the surveyors going over his land, the surveyors also had their men, and there was a fight known as "The Battle of Saxby."

After actions, injunctions and law cases, and some imprisonments, the line was made, but a delay of two years took place. The curve at Saxby was found unsafe at high speed, and had to be abandoned, a new one being constructed in 1892, as originally designed.

The Rugby and Stamford Railway, now part of the London and North-Western, was constructed under an Act of 18th June, 1846, and skirts the south-eastern boundary of the County of Leicester, passing through Market Harborough.

At the same period "The Ambergate and Nottingham" railway passed through the county at Bottesford, and that Company also purchased the Grantham Canal; this property now forms part of the Great Northern Railway system.

The Midland Railway Company, having acquired the Leicester and Swannington Railway in 1846, took steps to improve a portion of that system between Desford and

WOODHOUSE EAVES CHURCH.

ROTHLEY TEMPLE.

Coalville, and, under the powers of two Acts passed in the years 1846-7, the present Leicester and Burton line was constructed. This work, however, was practically in three portions; the first was the doubling of the old line between Desford Junction and Coalville, and the making of a deviation line two miles in length near Thornton, in order to avoid the use of the old Bagworth incline, which had been worked by a rope, and this doubled railway was brought into use on the 27th March, 1848. The second section extended from the Mantle Lane, Coalville, to Burton-on-Trent; and on the 1st March, 1849, when this length of line was opened, a new service of two through passenger trains a day, each way, commenced to run between the West Bridge station (Leicester), Desford, Coalville, and Burton. However, this was only a temporary arrangement, due to the Knighton Junction and Desford line not being ready for traffic in consequence of the heavy rock cutting at the Shoulder-of-Mutton Hill, and the sinking of a pier of the "Twelve Bridges" viaduct near Leicester. These difficulties were ultimately overcome, and on the 1st August, 1849, when the Knighton Junction and Desford line was opened, the through trains ran between Leicester (Campbell Street station) and Burton-on-Trent, and from this latter date the original line from West Bridge to Desford has been worked and regarded as a branch only, and with the exception of working coal for the use of the pumping engine, the Swannington end of the old line is now out of

use for traffic purposes altogether.

The Midland Railway Company next constructed the Leicester and Hitchin line, commencing at the North Junction, Wigston, running past Kibworth to the Great Bowden Junction on the Rugby and Stamford Railway, and, by running powers, making use of that line as far as the south end of the original Market Harborough station, from whence it continued on to Desborough, Kettering, and Bedford, to Hitchin Junction, on the Great Northern system. On the 8th of May, 1857, the Leicester and Hitchin line was brought into use for regular passenger traffic, and on the 1st of February, 1858, it became the Midland Company's main line to London, instead of the former Rugby route, and the Midland Company ran its own engines and trains, via the Leicester and Hitchin line, and exercised running powers over the Great Northern forward to King's Cross Station, London. This was a great advantage and meant vastly improved train service between the county of Leicester and London.

The next movement took place on the western side of the county, and led to the introduction of London and North-Western trains into Leicester over the Midland rails from Wigston Junction. On the 1st January, 1862, the Nuneaton and Hinckley Railway Company completed its line between those towns, and was duly brought into use; the name of the Company was changed to the "South Leicestershire," and the line opened to Wigston, with running powers over the Midland Railway to the Leicester

station by the London and North-Western Company on the 1st January, 1864. In 1867 the South Leicestershire became North-Western property.

By running powers over the South Leicestershire line, and the opening of its new Nuneaton and Whitacre line, the Midland Company on the 1st November, 1864, obtained a direct route from Leicester to Birmingham.

On the 1st October, 1868, the Bedford and London line was opened for express traffic, and St. Pancras became, and has remained, the London home of the Midland Company, and on that day trains commenced to run between Leicester and Kentish Town, 97½ miles, without a stop, which was then the longest continuous run in the world.

The opening of a curve at Wigston in 1872 enabled traffic to be sent direct from the London line to the South Leicestershire without coming into Leicester. A fast newspaper express to Birmingham in the early morning now runs by that route.

On the 1st January, 1874, the portion of the ancient Ashby Outram-way, between Ashby and Worthington, became converted into a modern single-line railway.

The Ashby and Nuneaton Joint Railway follows very closely the course of the old Ashby Canal, and the line was constructed by the London and North-Western and Midland Companies. It was opened for passenger traffic on the 1st September, 1873, the joint property thus brought into use extending from the two stations at Nuneaton to the junctions at Moira, and also the branch

from Shackerstone to the Midland junction at Coalville, or a total distance of 25 miles 10 chains. However, the Hinckley curve, $3\frac{1}{8}$ miles in length, giving direct communication between Hinckley and Stoke Golding station, has never been opened, and remains in a disused condition to this day, the rails having been removed.

The Great Northern and London and North-Western Companies brought their joint line into operation between Bottesford and Melton Mowbray on the 30th June, 1879, and the continuation of the joint line to Welham Junction, near Market Harborough, was opened on the 15th December in the same year. The curve at Melton, uniting these joint lines and the Midland, is not, however, used. The Midland Company's Nottingham and Melton line, which passes for a few miles through the county of Leicester, was opened for passenger traffic in February, 1880, and forms a portion of a second Midland main line from Nottingham to London, via Melton, Manton, and Kettering.

The Great Northern Railway Company, having on the 1st January, 1883, opened its railway from the Belgrave Road station, Leicester, to Tilton junction, on the previously mentioned joint lines, commenced to run trains from Leicester in connection with its main line trains at Newark and Grantham. It provides an easy and cheap means of spending a day by the seaside, at Skegness, and passengers largely avail themselves of this holiday route. A junction line at Leicester, between the Great Northern

and the Midland systems, was made, but has not been brought into use.

The Charnwood Forest Railway Company, on the 16th April, 1883, opened its line from Loughborough to the joint line junction, Coalville; this railway follows very closely the course of the ancient canal and crosses its bed many times. By arrangement the London and North-Western Company finds the engines and vehicles and works the traffic, although the original Company still remains as nominal owner.

On the 1st September, 1884, the Midland extension line at Woodville being completed, a new service of passenger trains was run from Burton to Ashby via Swadlincote and Woodville, thus for the first time using the old "Wooden Box Branch" for passenger traffic.

At Market Harborough, on the 28th June, 1885, the North Western and Midland Companies jointly brought the new station and lines into use, and entirely abolished the old junctions at Great Bowden and Harborough. This alteration was of vast importance, as it put an end to the serious delays which had for years taken place in consequence of the crowded state of the line at this point. By an Act of 1890, the North-Western and Midland Companies jointly made the Narborough and Enderby branch, 2⅝ miles in length; it is at present only used for the conveyance of stone.

In 1893 the original West Bridge station was closed for passenger traffic, and the new station on the King Richard's Road brought into use.

The Midland Company on the 1st May, 1894, opened the Saxby and Bourne line, thus giving Leicester a direct route to Cromer and the East Coast.

On the 15th March, 1900, the Great Central Railway Company opened its new extension line to London; this railway passes through the county of Leicester from north to south, and has important stations at Loughborough, the western side of the town of Leicester, and at Lutterworth, thus giving another communication with London, and also with all parts of the north via Nottingham.

Modern Street Tramways.

The Leicester Tramways Company, on the 24th December, 1874, opened its first section of line, extending from the Clock Tower along the Belgrave Road, this being the introduction of the modern "tramway" system within the county. It is a rather curious circumstance that this system of street passenger railway should have come to be generally spoken of as a "tramway." It appears to be thought that a railway worked by horses, or a railway leading to a colliery, is a "tramway"; this, however, correctly speaking, is a complete mistake. The system in our streets is laid with "edge-rails," and the cars have flanged wheels, consequently it is without doubt a "street railway;" the fact that the wheels are kept on the rails by flanges proves that it is not a "tramway," as Outram's system implies the use of flat wheels and flanged rails. Americans and foreign engineers

always speak of their system by the proper names.—"street railway" and "street car," and express surprise that we in England fall into the error of using the terms "tramway" and "tram-car."

Electric Street and Light Railways.

The Leicester Corporation, having purchased the original street tramways, removed the same and laid down electric street railways, the first portion of the new system being opened on the 18th May, 1904.

The last record which we have to make is that the Midland Railway Company opened its Ashby and Burton electric light railway on the 2nd July, 1906, and the Swadlincote and Gresley section of the same line on the 24th September last year.

Good and cheap communication is essential to trade, and the writer is of opinion that the facts which he has collected and placed in this brief record prove that from the time of the Romans to the present day Leicester and Leicestershire have always been supplied with the best known means of communication at the respective periods.

The Leicester Corporation Museum contains many Acts, diagrams, plans, photographs, rails, &c., relating to the various lines mentioned in this article.—C.E.S.

GEOLOGY.

NOTES ON THE GEOLOGY OF THE DISTRICT AROUND LEICESTER.

By C. Fox-Strangways,
late of H.M. Geological Survey.

(THE PRE-CAMBRIAN ROCKS. By W.W.Watts, M.A., M.Sc., F.R.S., *Professor of Geology at the Royal College of Science; and formerly of H.M. Geological Survey.*)

Leicestershire, from its central position, has a great variety of rocks coming to the surface within its borders or just beyond. In the following notes it is proposed to give a short description of the general disposition of the rocks and of the mode of their formation.

Although the boundaries of the county are somewhat irregular, its length and breadth are nearly equal, its average width from west to east being about 30 miles, while the mean length from north to south is about the same distance; the total area is, therefore, roughly, about 900 square miles. Its borders are formed by the counties of Nottingham and Derby, on the north; Derby, Stafford and Warwick, on the west; Warwick and Northampton, on the south; and Rutland and Lincoln, on the east. These boundaries are purely political, they do not follow the physical features of the country, and rarely coincide with either its river systems or the hill ranges of the district. In the north-west the Soar and Trent form its boundary for a short distance, while in the south-east the

Avon, the Welland, and the Eye form a portion of the boundary in that direction.

With the exception of the Trent, these rivers all rise near the southern part of the county, which is, therefore, traversed by the principal watersheds of the district. The main watershed of England, which separates the waters flowing east from those flowing west, enters the county at Husbands Bosworth, and passes by Knaptoft, Gilmorton, and Ashby Parva to the Watling Street, near Willey; while the Trent drainage is separated from that of the Welland, flowing east, by a line of high ground extending from Husbands Bosworth, by Kibworth, Tilton, and Knossington, to the borders of Rutland, north of Oakham. The larger portion of the county is, consequently, within the drainage of the Trent, which flows not far from its north-western borders, receiving many tributaries, of which the Soar is the most important. This river forms a broad central valley, dividing the county into two portions, of which the western is the most elevated and of the greatest commercial importance. Along the margins of this river are extensive areas of rich pasture and arable land; beyond this on either side the ground rises gently, and forms low undulating hills, which in the Charnwood Forest area puts on the character of a miniature mountain range, and, attaining a height of 912 feet, is the most elevated part of the Midland Counties. The ground around these hills rises to between 400 and 500 feet, but the slope is so gradual that it is difficult to appreciate their altitude. The hills on the eastern side of the county are,

on the whole, not so lofty, but there are several isolated summits rising from 600 to 700 feet. These physical features are due to the geological structure of the district, and the nature of the rocks which occupy its surface. These we will now proceed to discuss.

The geological formations that cover the largest amount of surface are the Trias and the Lias; these, except over a portion of the Charnwood Hills, the Coalfields, and a few other small areas, occupy the whole of the county. The Trias crops out over the western half of this district; while the fine pasture lands on its eastern side are formed by the Lias, the dividing line between them running, in a north and south direction, through the town of Leicester. The following are the geological formations that occur in the county, in descending order :—

Recent and Pleistocene	Alluvium.	
	River terraces.	
	Boulder-clay, sand and gravel.	
Jurassic	Inferior Oolite.	Lincolnshire Limestone.
		Northampton Sand.
	Upper Lias.	
	Middle Lias.	
	Lower Lias.	
Triassic	Rhætic.	
	Keuper	Marl.
		Sandstone.
	Bunter.	
Permian ?	Breccia and Marl.	
Carboniferous	Coal-measures.	
	Millstone Grit.	
	Carboniferous Limestone.	
Archæan	Pre-Cambrian Rocks of Charnwood.	

The town of Leicester is centrally situated for examining these various formations, and good sections in the Keuper Marl and Drift are usually to be found in the vicinity of the town, while the more distant exposures of the other rocks may be easily reached by rail.

THE PRE-CAMBRIAN ROCKS.

(BY W. W. WATTS.)

The oldest rocks in Leicestershire come to the surface in Charnwood Forest, situated about six miles north-west of Leicester and about three miles south-west of Loughborough. Although the "Forest" is for the most part cleared, much of the area, especially the higher ground, is covered with woods, or else consists of open and rocky moorland. The landscape is very picturesque, and its most characteristic feature is the close intermingling of two types of scenery, distinct in their outlines, structure, and vegetation.

THE LANDSCAPE.

Most of the valleys and lower grounds are pastoral and fertile in aspect, with gentle slopes, a thick soil, and a covering of grass or ordinary crops; they are, in fact, a part of the Midland Plain of England, continuous with that of the western part of the County of Leicester. The hills are in sharp contrast; they are steep and barren, often crowned with crags and cliffs, and marked off by abrupt changes in slope from the lower grounds. This difference is a consequence of the fact that the hilly region has for its floor a group of ancient, hard, and resistant rocks

mainly of volcanic origin ; while the valleys are cut out of the soft, weak, red marls belonging to the Keuper division of the New Red Sandstone. Numerous sections show that the ancient rocks of Charnwood Forest underlie the Red Marls unconformably, and that a considerable interval of time must have elapsed between the periods of formation of the two rock groups.

THE SUCCESSION OF ROCKS.

The ancient rocks of Charnwood Forest were remapped by the Geological Survey and new editions of the maps (sheets 141 and 155) and memoirs issued in 1901 and 1905 respectively. The following classification of the rocks, given in descending order, was then adopted by the writer :—

	Eastern Side.	Western Side.
C—The Brand Series.	(*c*) Swithland Slates. (*b*) Conglomerate and Grit. (*a*) Purple and Green Beds.	
B—The Maplewell Series.	(*e*) Olive Hornstones of Bradgate. (*d*) Woodhouse Beds.	? The Porphyroids.
	(*c*) Slate-Agglomerate.	(*c*) Slate-Agglomerate of High Tors.
	(*b*) Beacon Hill Hornstones.	(*b*) The North-west Agglomerates.
	(*a*) Felsitic Agglomerate.	(*a*) The Abbey and Strawberry Hill Agglomerates.
A—The Blackbrook Series.		

THE BLACKBROOK SERIES.

The Blackbrook Series consists for the most part of very fine-grained grits and hornstones, with occasional seams of coarser material, one of the most important of which is seen in the immediate neighbourhood of the Blackbrook, where it was quarried for the construction of the dam of the new reservoir. The constituent particles are mainly of volcanic rocks, and probably the whole series is volcanic in origin, the material having been laid down in water. The predominant colours are buff and green, and certain of the beds are beautifully banded. The rocks of this series are not very well exposed, but the types are rather easily recognised when seen. One of the highest beds has been quarried at Whittle Hill and elsewhere as the source of the "Charley Forest Hornstones."

THE MAPLEWELL SERIES.

The Maplewell Series is exclusively volcanic; it contains coarse tuffs or agglomerates on several horizons and extending over a wide area of country. The rocks are quite conformable to the Blackbrook Rocks, and are generally green in colour, usually weathering to a creamy tint. The finer-grained beds are well banded, especially on weathered surfaces, but the agglomerates are massive, and their most conspicuous divisional planes are joints running nearly at right angles to the stratification.

The Felsitic Agglomerate is taken as the base of this series. In this stage the most prominent rock possesses the unusual feature

that it shows its clastic structure on broken faces better than on weathered surfaces. The fragments, which vary from half an inch to a couple of inches in length, consist of varieties of rhyolite, felsite, and andesite, and are usually carious and rotten inside. The ground-mass is a felspathic and quartzose grit, generally containing much epidote. Associated with this type there are minor grits, one of which is conspicuously pale in tint, while others are richly epidotic. There are associated bands of finer material, some being banded hornstones. The coarseness of the rocks of this Stage varies from point to point and from bed to bed, but in many places one or more of the characteristic rock types are to be found.

The Beacon Hill Hornstones consist mainly of fine-grained siliceous tuffs, green in colour, and with sharp splintery fracture. At times they are very much indurated. Beds of grit are infrequent, and usually only an inch or two thick; they are either epidotic or strikingly felspathic. The most important grit band crops out at Buck Hills, but this is regarded by Dr. Bennett and Dr. Stracey as a repetition of a portion of the Felsitic Agglomerate by faulting. With this conclusion the present writer is not yet able to agree, although there is much to be said in favour of this interpretation of the section, as will be seen later.

The Slate-Agglomerate is a very striking rock, and is traceable over a larger area than any other member of the sequence. It is an agglomerate made chiefly from the eruption

of fragments of andesite, but these are accompanied usually by fragments of purple and green slate and hornstone. Most of the fragments are small, but at several localities—Roecliffe, Bradgate, and Markfield—there are great masses of slate, four to six feet in length, bent up in the agglomerate. This striking feature has not yet been satisfactorily explained, though the suggestion that pieces of the interbedded slates and hornstones (shales and fine tuffs) became involved in landslips of the volcanic ash has much to recommend it. This band, though occasionally faulted out or concealed, has been found almost everywhere in the Forest in its proper place in the sequence, and it forms a most valuable datum rock in unravelling the structure of the region.

The Woodhouse Beds consist of about equal proportions of fine tuffs and grits, the most striking of the latter being at the summit of the Stage, in the grounds of the Hanging Rocks. In these beautiful grounds the clearest display of these beds is to be found, and nearly every horizon may be studied.

The Olive Hornstones of Bradgate, which come next in the succession, are not very well exposed, but they cover a considerable area in Bradgate Park, where their characteristic colour, their even texture, and their remarkable "ripple-cleavage" are well displayed. They are faulted out of the sequence at Woodhouse and along most of the eastern side of the Forest, but a small thickness of them is shown in the northern quarry of the Hanging Rocks. They record the continuance

of volcanic eruptions of a mild type, incapable of ejecting more than dust of various degrees of fineness.

THE BRAND SERIES.

The Brand Series, though containing a certain amount of material directly furnished by volcanoes, is chiefly made up of terrigenous matter, derived and laid down by water action.

The Purple and Green Beds.—This is an unimportant subdivision, but one easily recognised and frequently exposed. The rock character is like that of the Olive Hornstones, but with purple-stained bands, increasing in numbers in the higher part, thus graduating upwards into the following conglomerates.

The Conglomerate and Quartzite Stage is well seen at the Hanging Rocks and the Brand. There are numerous bands of well-rounded pebbles of quartzite, schist, slate, and hornstone. These fragments are often set up on end, so that their greatest length corresponds with the cleavage planes. Among the conglomerates occur several thin bands of slate, one of which, a very fine-grained slate or phyllite, purple, and of good quality, has been worked wherever it could be got at, as at Woodhouse and the Brand. Above the conglomerates comes a considerable thickness of dark grit, rough to the feel, and with a peculiar purplish bloom on it. This again is a rock type easily recognised, and is well seen in several places on the east and south-east sides of the Forest. In this Stage a quartzite also occurs, and its thickness is found to increase as one follows the beds

THE MAYOR'S PARLOUR, OLD TOWN HALL.

CHANTRY HOUSE OF ST. GEORGE, 18, HIGHCROSS STREET.

round from Forest Gate, through Woodhouse and the Brand, to the western side of Bradgate, where there is a considerable thickness of a hard, highly silicified, black or purple quartzite.

The Swithland Slates form the highest horizon of the ancient rocks seen on the eastern and southern sides of the Forest. They are purple or green, and have been extensively worked for slates and slabs. At the present time the only quarry open is at Bradgate Farm, where slabs are made, but the depth of the numerous quarries at the Brand, Swithland, and the Groby district attests to the former importance of this industry. These slates were largely used in Leicestershire and the neighbouring counties, and appear to form a good, if heavy, roofing material.

THE NORTH-WEST REGION.

The subdivisions of the Charnian Rocks described above are best characterised and most easily traced on the eastern side of the Forest, from Forest Gate to Bradgate, and round towards Bardon Hill. On passing round the south-west corner, however, several of the divisions begin to be coarser in grain and less easily discriminated. At the same time considerable faulting occurs on approaching Bardon Hill, and exposures become less frequent. In consequence of this, new types appear to come in suddenly at Bardon Hill and in the north-west district, extending from High Tors to Grace Dieu, and correlation of this district with the rest

is rendered very difficult ; a difficulty further increased by the intrusion of igneous rocks.

A rock like the Slate-Agglomerate was, however, detected by Messrs. Bonney and Hill, at Bardon, and a similar rock is traceable along the western flank of Warren Hills (the High Tors Moorland). Considerably below this horizon, at Timberwood Hill and Strawberry Hill, a rock like the Felsitic Agglomerate has been found. Assuming the correctness of these correlations, the intervening rocks must be representative of the Maplewell Series. These intervening rocks consist, for the most part, of coarse volcanic agglomerates, bearing fragments which vary in size from a few inches to 3 or 4 feet in length. They must evidently have been deposited quite near to a volcanic vent, and would naturally graduate towards the grits and fine ashes which occur on this horizon in the more easterly parts of the Forest. It is in favour of this view that grits and agglomerates are found on the same horizon between Bardon and Ulverscroft, but the fact that the exposures about this district are poor, and that the rocks of this horizon have been denuded off the central part of the Forest, causes a rather marked contrast between the supposed representatives of the Maplewell Series in the north-west district and the rest of the Forest.

Coarse agglomerates extend along the strike of the beds to Grace Dieu, which may include the horizon of the Woodhouse Beds, as well as that of Maplewell. These Grace Dieu rocks have much resemblance to the rocks

quarried at Bardon, whose position is complicated by a great transverse fault which runs north of the hill. A pebble bed occurs at the inn at Bardon which may represent the Brand Conglomerate, and above it come the slates of Bardon Lodge, corresponding with the Swithland Slates, while the rocks of Billa Barrow may also be correlated with the same slates.

An agglomerate with slate fragments occurs at Grace Dieu Warren, associated with intensely indurated hornstones and pebble beds, but the place of these rocks in the sequence is doubtful, as this region is evidently traversed by profound faults. The agglomerate has much in common with the Slate-Agglomerate, and the conglomerates very closely resemble rocks in the Brand Series.

STRUCTURE OF THE AREA.

The rocks thus traced round the Forest, if the divisions have been correlated correctly, indicate the general structure of the area. Broadly, this is an anticline, folded over an axis running N.W. and S.E., but as the dip swings round gradually from N.E. to E., S.E., S., and S.W., it would be more correctly spoken of as the southern half of an elliptical dome, or an anticline, with its axis pitching towards the S.E. This structure was first recognised by Sedgwick, and verified by Bonney and Hill, who also detected the main anticlinal fault and a second one (that of Hammercliffe) roughly parallel to it. The closer study of the run of individual beds reveals a definite faulting system, which, as indicated in the map (see pp. 264-5), at least on

GENERALISED SECTION ACROSS CHARNWOOD FOREST.

By W. W. Watts.

To show the Structure and Faulting.

N.F.—Normal Faults.
O.F.—Overthrust Faults.
10. Swithland Slates.
9. Brand Conglomerate.
4. Slate-agglomerate.
3. N.W. Agglomerates, etc.
2. Felsitic Agglomerate.
1. Hornstones and Grits.

(See also index to diagram inserted opposite p. 257).

the eastern side, forms a "bundle" spreading out from the central part of the dome. Most of these are reversed faults or thrust-planes, producing repetitions in the sequence and inlets of older rocks amongst the newer. The fault postulated by Dr. Bennett and Dr. Stracey for the repetition of the Felsitic Agglomerate at Buck Hill would be quite consistent with numerous others already detected and mapped in this area.

These faults are such as would be developed by overthrusting towards the centre, as though the limbs of the dome had been pushed (telescoped) over the keystone of the arch. A diagramatic representation of this structure is given (see p. 260), which is constructed by simplifying the details given on the longer section (see inset opposite p. 257). If a similar structure exists on the west side—as the Hammercliffe and other faults seem to indicate—the geotectonic form is that of a symmetrical, overthrust, mountain range. This form was subsequently modified by a normal or drop fault on the east side, and it is possible that a similar one forms the boundary of the Forest towards the west.

Transverse faults traverse the dome roughly from N.E. to S.W., their effect being to narrow and broaden alternately the outcrop of the rocks of the dome. This is brought out by the map (see pp. 264-5), which has been constructed on the hypothesis that all the Trias has been cleared off the surface of the ancient rocks.*

* The author is indebted to the Council of the Geologists' Association for the map and sections, which were originally published in their Proceedings, and to the Director of H.M. Geological Survey, who kindly gave permission for the use of them.

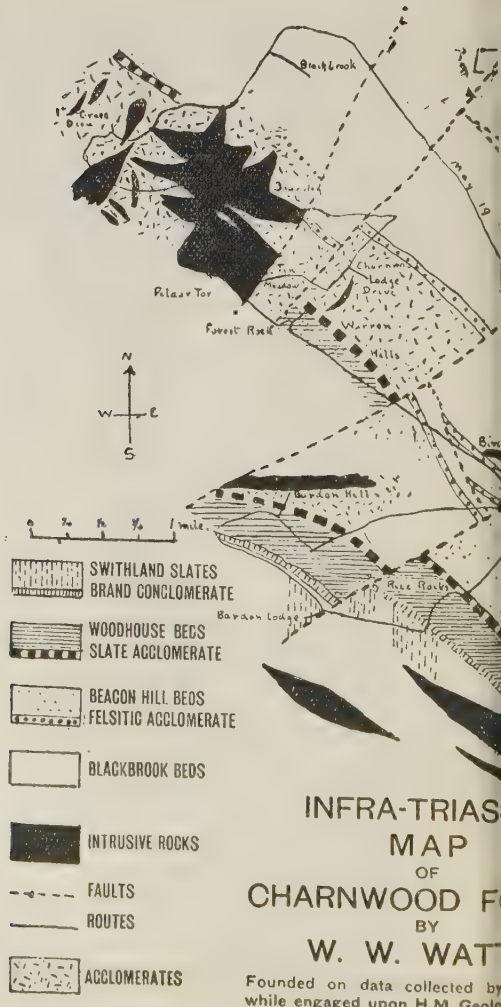
The earth-movement has been also responsible for the cleavage of the rocks, which occurs at a steep angle, striking in the same direction as the axis of folding and dipping away from that axis on either side. The cleavage is intensified near to faults, is best seen in fine-grained rocks, and by its diversion in direction, owing to the texture-banding of the Olive Hornstones, gives rise to the "ripple-cleavage" so characteristic of those beds. The cleavage has often crushed blocks in conglomerates and agglomerates, or compelled them to turn round at right angles to the pressure to which the cleavage is due. The tuffs of Bardon Hill are not conspicuously cleaved, but certain parts have been completely crushed into bands of shale-like rock. A similar crush zone, passing through the "porphyroid" of one of the upper quarries, has converted that rock into a sericite-schist, in which the porphyritic quartz blebs form "augen."

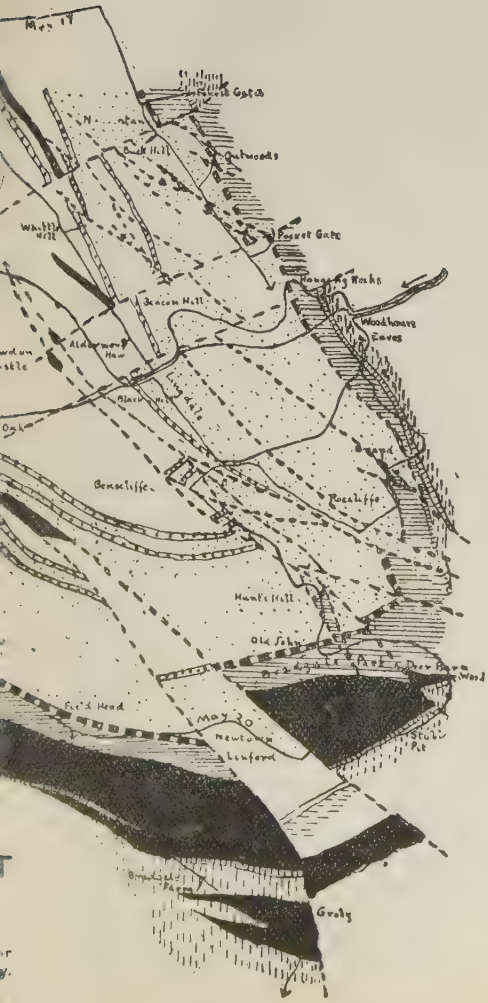
THE IGNEOUS ROCKS.

Associated with the ancient rocks there are intrusive rocks of several kinds. The earliest in date are *quartz-bearing andesites* or *dacites*, of conspicuously porphyritic character, intruded amongst the north-west agglomerates at such localities as Bardon, Peldar Tor, and High Sharpley. These rocks closely resemble the "porphyroids" of the Ardennes, and this term has often been used in describing them. In Bardon Hill a junction, exposed some years ago, proved clearly that these rocks are intrusive into the tuffs which are very extensively quarried for road-metal.

At the same time fragments of precisely similar rocks occur in the agglomerates, and the intrusive rocks themselves are traversed by cleavage planes. Hence they attained their present position before the principal earth-movement, and may represent the magma from which the clastic volcanic rocks were derived, intruded into the volcanic cone during the later stages of the vulcanicity. Other "porphyroids," somewhat different in their characters, less porphyritic or less quartzose, are to be found at such localities as Grace Dieu, Birch Hill, and Alderman's Haw, on the eastern side of the Forest. It is just possible that some of these last rocks may be lava-flows. These rocks have suffered much from the earth-movement, and are closely cleaved and crushed. When cleavage has supervened on an igneous rock of nodular structure, as at High Sharpley and several localities in the Grace Dieu region, the rock simulates an agglomerate, and discrimination is difficult in restricted exposures.

The next intrusions in point of date were of a rock which has been called *augite-syenite*, *augite-diorite*, and *augite-granophyre* by different observers. These form large bosses or laccolitic masses, or else long lines, often associated with fault planes, such as the anticlinal fault and that of Hammercliffe. The most southerly masses of these rocks seem to have been affected by the movement which produced the cleavage, and they are broken by the N.W., S.E. faults; while the more northerly, which are more basic in composition, follow the direction of the faulting,


Blackbrook
Grace Dieu
Tin Meadow
Charnwood Lodge Drive
Pelaw Tor
Forest Rock
Warren Hills
N
W
E
S
Bardon Hill
0 ¼ ½ ¾ 1 mile.
Rice Rocks
Bardon Lodge
SWITHLAND SLATES
BRAND CONGLOMERATE
WOODHOUSE BEDS
SLATE AGGLOMERATE
BEACON HILL BEDS
FELSITIC AGGLOMERATE
BLACKBROOK BEDS
INTRUSIVE ROCKS
FAULTS
ROUTES
AGGLOMERATES
INFRA-TRIAS
MAP
OF
CHARNWOOD F
BY
W. W. WAT
Founded on data collected by
while engaged upon H.M. Geolo


Forest Gate
Buck Hill
Gutwoods
Whittle Hill
Pocket Gate
Hanging Works
Beacon Hill
Woodhouse
Eaves
Aldermore Haw
Black Hill
Oak
Grand
Genscliffe
Rocliffe
Hunt's Hill
Old John
Dear Barn Wood
Field Head
May 20
Newtown
Linford
Stub Pit
Bradfield Farm
Groly

and appear to have been intruded during the latest phases of the movement. They are freely worked for road-metal, as the "porphyroids" are, but yield a larger proportion of paving setts. There are quarries both inside the Forest proper and on its extreme margin, as at Cliff Hill, Markfield, and Groby.

A third intrusive rock is met with in the Mountsorrel district, on the western side of the Forest, separated from it by two or three miles of Trias. This is a pink or grey *hornblendic granite*, famous for the paving setts produced at the Mountsorrel group of quarries. This rock shows two intrusive junctions, with highly metamorphosed slaty rocks of Charnwood type. These junctions occur at Brazil Wood and in Buddon Wood; in each case a sericitic hornfels is produced, in which garnets occasionally occur. In excavating a trench for the Brazil Wood dam, this rock was seen to be penetrated by innumerable veins and strings of a dark, fine-grained granite. The granite is pierced by contemporaneous veins of pink felsite, the "salmon" of the quarrymen, and by dykes of dolerite and melaphyre, as seen at Mountsorrel and Buddon Wood. At a little knoll near Brazil Wood there also occurs a mass of dark hornblendic diorite, the relations of which to the granite and slates are not exposed. The age of the granite is uncertain, as there is no evidence beyond the fact that it intrudes upon Charnian rocks and is cut by the later dykes. It is not much affected by earth-movement, and is almost certainly later in date than the "porphyroids" and

syenites ; thus it may be compared with other post-Silurian granites, such as those of Shap, Eskdale, Skiddaw, the Cheviots, and the South of Scotland, with some of which it has petrological affinities. No precisely similar rock has been found in the Forest proper, but there is on Ives Head a dyke of red micaceous felsite which may perhaps be correlated with the "salmon" veins of Mountsorrel.

THE SOUTH LEICESTERSHIRE SYENITES.

In South Leicestershire, at such localities as Croft, Enderby, Narborough, Stoney Stanton, and Barrow Hill, there occur, surrounded by Trias, bosses of igneous rock, varying from syenite to felsite, evidently related petrologically to the syenites of the Forest. They are unconformably covered by the Keuper Marls, but in one old pit at Enderby the igneous rock is seen in contact with Charnian slates. These inliers prove the extension of the igneous rocks to a considerable distance south-west from the Forest, doubtless accompanied by other Charnian rocks below the Triassic mantle. A rock like the Peldar "porphyroid" was struck in a boring at Kettering, and, in his report to the Royal Commission on Coal Supplies, Professor Kendall argues for an extension of these rocks far to the south-east, forming a boundary to the deposition of the east Pennine coalfields. It is interesting, in this connexion, to note that the Leicester earthquakes of 1893 and 1904 were apparently due to movement along the line of the anticlinal fault of the Forest.

AGE OF THE ROCKS OF CHARNWOOD FOREST.

The age of the ancient rocks has been the subject of much controversy. After being attributed to the Cambrian, Ordovician, and Uriconian systems, they are now paralleled with the Longmyndian Rocks of Shropshire, with the lower part of which they have many features in common. Evidence from superposition merely proves that the rocks are much older than the Keuper and the Carboniferous Limestone of Grace Dieu. A comparison with the uncleaved Cambrian and Uriconian Rocks of Nuneaton shows that there is no resemblance between them and the Charnian Rocks. Uncleaved rocks like the Cambrian Stockingford Shales were, moreover, met with under the Trias in the Spinney Hills boring, near Leicester, and, when pierced, a series of hard grits, quite unlike any Charnian Rock, was found underneath them. Fossil evidence is limited to the finding of a few worm-casts in the lower part of the Brand Series in Bradgate Park, where, according to Professor Lapworth, the rock-type closely resembles certain worm-track bearing rocks in the Longmynd.

The underlying divisions of the Maplewell Series present resemblances to the other members of the lower (grey) Longmyndian series in Shropshire, with the difference that in Shropshire the volcanic constituents of the grits and slates appear to have travelled farther.

THE CHARNIAN SYSTEM.

Under these circumstances, it will be best

to use some term like the "Charnian System" for these rocks until their relations to the Longmyndian Rocks are well established. It may be regarded as, at any rate, certain that this System is of pre-Cambrian age, probably older than the Uriconian. Moreover, the unique character of the "porphyroid" and syenite intrusions—so far as England is concerned—would seem to show that the earth-movement and intrusion of these rocks was also of pre-Cambrian date. It is in favour of this view that the direction of movement, N.W. to S.E., is a very ancient one in Britain.

RELATIONS TO THE TRIAS.

The unconformable relations of the Charnian Rocks to the Keuper Marl are readily demonstrated. Junctions are to be seen at Newcliffe, the Hanging Rocks, the Brand, the Swithland, and Groby slate pits, and at Bardon, while innumerable wells are sunk through the Trias, where it is shallow, to obtain the water which is generally contained in the basement beds of the Trias, at the contact with the ancient rocks. The basal beds of the Trias are often a breccia made of large fragments derived from the underlying Charnian Rocks.

The surface of contact is not a plane, but is very irregular. Valleys filled with Marl are exposed at the Hanging Rocks, Bardon, and the Brand, and in the last locality the same valley is traceable for a considerable distance in neighbouring slate-pits. There is also evidence, from wells and sinkings, that

the edges of exposed masses of ancient rock plunge down abruptly under the Marl at angles as steep as those which project above the Marl plain. Thus it is clear that there exists, buried under the Triassic plain, a fossil landscape surface dating back to Triassic times, when the flanks and summits of a pre-Triassic mountain range were gradually invaded, and, stage by stage, submerged, under the desert and lake deposits of the Triassic period. Whether the whole Forest area was completely buried is not certain, but probably it was. Parts of the landscape have been subsequently uncovered by denudation, and there is reason to suppose that its original (pre-Triassic) character has been very little injured in the process. The Keuper Marl is so soft and the Charnian Rock so hard that denudation is naturally concentrated upon the former. The areas of ancient rock, too, are not much cumbered with their own debris, and some of that may well date to Triassic, rather than to recent, denudation. The best evidence of this is given by the remarkable terraced surfaces of the Mountsorrel granite, which have been found to pass under the Keuper Marl. They are thus of Triassic date, and it is pretty certain that they were cut and smoothed by the sand-blast action of desert winds in Triassic times. And yet these surfaces, delicate as they are, have in places survived the denudation of the Glacial and later epochs, as they have also been found in contact with boulder-clay and with glacial sands. The denudation has, in fact, resembled the process by which an

organic fossil embedded in rock is developed by a skilled collector.

A FOSSIL TRIASSIC LANDSCAPE.

Thus it may be safely argued that the landscape of the exposed part of the ancient rocks of Charnwood Forest, like that beneath the Triassic mantle, in its most conspicuous characters, is really a Triassic landscape preserved fossil in the Marl, and developed by recent denudation for our study. Once this truth is grasped many anomalies are explained; the absence of escarpments, the dependence of features on cleavage rather than on stratification, the severing of ridges, and the general resemblance of the whole upland to the scenery in such desert regions as the "bad lands" and the Arizona Desert in America. These are features which would result from the history which the ancient rocks must have passed through since their formation.

First of all the rocks were compacted, cleaved, folded, and faulted; given, indeed, the structures which converted them into a lofty mountain chain. Whenever this process began—and the present writer is inclined to place it as far back as pre-Cambrian time—it was certainly completed by Old Red Sandstone time, when this range formed one of the boundaries of the great lake of West Midland England and Wales. During this period, at least, it underwent denudation and sculpturing, at a time when all its rocks had been much, and about equally, hardened, jointed, crushed, and cleaved. The range

next formed a series of islands in the Carboniferous Limestone sea, when probably some of the severing of ridges occurred. Then the climate gradually became drier, and the range underwent, probably above water, frost and torrent denudation, and contributed fragments to the Permian breccias of its neighbourhood. Lastly, with its lower flanks buried under the Carboniferous and Permian deposits, its summits stood up as islands above the lakes and deserts of Triassic times, and received their final touches by the action of heat and wind, before they were buried under a waterproof coating of Marl, which was to preserve them for so many ages, uninjured, till our own days.

The uncovering may have begun in Tertiary times, but it is clear that much of the Forest rocks had been exposed before or during the Glacial Epoch, as glacial drift is found in many parts of the Forest and round its edges, while blocks of the Mountsorrel granite and other recognisable Charnwood rocks were carried by the ice and deposited over the Midland Plain.

THE DEVELOPMENT OF THE AREA.

The process of uncovering deserves a little consideration. The ancient rocks are found to be exposed in three ways—(1) On the summits and flanks of the hills where the hard rock pushes up through the Trias mantle. Three of these masses are large, that of Beacon Hill, that of Benscliffe, and that of the Peldar area, being each over two miles in length. Some are less than an acre, and a few

THE WESTERN PARK.

SHADY LANE, EVINGTON.

have only come to light in quarrying operations. (2) In the Blackbrook valley the floor of the valley, as well as the sides, is situated on the ancient rock. (3) Many of the valleys, the lower and upper parts of which are both floored by Trias, cross one or more bars of the Charnian Rock before getting clear of the Forest.

The hill summits would naturally be the first parts to show under the general ablation of the whole district, hence they present the most imposing masses of old rock. The streams, starting in the middle of the area under which Charnwood Forest lay buried, would flow out more or less radially, and begin carving out their channels in the Keuper Marl, until they reached the buried skeleton underneath. When this was reached, their later downward cutting would tend to be at the junction of the Charnian Rock with the Trias. Thus, where the Trias was shallow and easily reached, the tendency would be to wash away the Marl and leave the hard rocks standing out, clearing out the Triassic debris from the old pre-Triassic valleys. Farther along the streams, however, where the old range was deeper down under the Trias, the guiding influence of the buried skeleton would be less felt, and the stream would take its own way, uninfluenced by the skeleton, and, indeed, would not reach the skeleton until it had cut out an important valley of its own. Such a valley might very well differ in direction from the topography of the underlying skeleton, the ribs of which, when reached, might run

across the superimposed streams, which would then cut through them. Every stream in the Forest does this before escaping from it, with the exception of the Blackbrook. In consequence, the erosive power of the upper part of such streams is regulated by the rock bars, and they have not power enough to clear out their upper valleys, which are still Trias-logged. But for this these valleys would have had all their Marl removed, as has been the case with the Blackbrook, and the contrast between the pastoral and rock scenery, which is one of their chief charms, would have been lost. The unique character of the Blackbrook is due to the fact that the stream has not yet encountered a rock bar, its erosion has been unchecked, and it has succeeded in removing the whole of the Trias from its course down to the Loughborough Road. Hence there is presented here a cleared-out valley or fiord of Triassic date and character, and it is easily seen why the valley, in its gorge-like slopes and rock-bound character, is in such sharp contrast to all the other valleys in the Forest.

By plotting out the surfaces of junction of the ancient rocks and the Trias, it has been found possible to make a rough contour map of the old rock surface where it is exposed, and where it is buried under the Trias. As might be expected, the topography thus revealed is only different from that of the present in its intensity, the valleys being deeper and steeper and more fiord-like than those of the present ground surface.

SUMMARY.

Underneath the Trias of Leicestershire, and peering through it in places, there occur some of the oldest rocks and one of the oldest mountain chains in Britain, which, after undergoing innumerable vicissitudes in the time which elapsed between the Archæan and Triassic period, was finally buried up for ages, and is now only slowly emerging into view. In spite of the fact that the higher summits have been long exposed to the action of denuding agents, including the ice of the Glacial Epoch, the landscape, long after it has been developed, is found to retain many of the characters which it possessed in Triassic times. Charnwood Forest is, in fact, a Triassic landscape, almost uninjured, and still only partially revealed.

CARBONIFEROUS.

CARBONIFEROUS LIMESTONE.

At the close of the pre-Cambrian Epoch a great break in the geological succession took place in this district; and, while great thicknesses of strata were being laid down in other parts of Britain, this portion of the Midlands was probably beyond the area of deposition. Thus, in Leicestershire, the Silurian and Old Red Sandstone appear to be absent, and no evidence has yet been obtained that these rocks ever existed in the county. The first strata that

appear after this interval are beds of Carboniferous Limestone, which are found on the flank of the old Charnwood range. They rest unconformably on the older rocks, and at Grace Dieu abut against the northern end of these hills. The rock is here brought up by the Charnwood axis of elevation, which continues in a north-west direction, causing other exposures at Osgathorpe, Barrow Hill, Breedon Cloud, and Breedon. Along this line it dips sharply to the west and is lost beneath the overlying formations; it, however, rises again further west in a flat arch, which has been cut through by streams crossing this line of elevation, and is exposed in a series of inliers at Dimminsdale, Calke, and Ticknall.

The limestone has been worked at all the above places, but now only the quarries at Breedon and Breedon Cloud are in use. It is a Magnesian Limestone or Dolomite, consisting of a light-coloured, brownish-grey, semi-crystalline rock. At the southern end, in the neighbourhood of the Charnwood rocks, the limestone is browner and more impure. The rock is very fossiliferous, especially at Ticknall, but, these quarries having been abandoned for many years, there is not so much facility for collecting as formerly.*

LIMESTONE SHALES.

Resting on the limestone there are a series of shales and thin beds of sandstone and

* A list of the species obtained from the limestone is given in the *Geological Survey Memoir*, "Expl. of Sheet 141," and also in that on "the Leicestershire and South Derbyshire Coalfield."

limestone, which become more sandy in the upper part. These shales are best seen at Ticknall and Dimminsdale, where they are from 30 to 40 feet thick. They are also exposed at Calke, Worthington, and Grace Dieu, but at Breedon, Barrow Hill, and Osgathorpe are hidden by the overlap of the Trias. At King's Newton these shales are brought up against the large fault, and are seen in the brickyard at the side of the railway, where they are turned sharply up, and dip to the west at an angle of 45 degrees. In the absence of clear sections, these shales are difficult to separate from the overlying marls, and have been supposed to cover a larger area than is really the case. Both the limestone and the shales thin out considerably in their passage to the south. Thus, while there is about 3000 feet of limestone and 800 feet of shales in North Derbyshire, there is not more than 500 feet of limestone and 50 feet of shales in North Leicestershire, while on the flanks of the Charnwood Hills and further south it is much less.

MILLSTONE GRIT.

Above the shales just described a series of massive grits comes on, which are well exposed just beyond the borders of the county at Dawson's Rocks, and over the district between Ticknall and Stanton-by-Bridge, on the margin of the Trent. Small patches of this rock also occur at Staunton Harold and Thringstone, as well as along the foot of the hill at Castle Donington.

The Millstone Grit may be separated into

three divisions:—An upper series of fine-grained, thin-bedded sandstones; a middle series of massive coarse, yellow, brown, and red grits; and a lower series of coarse conglomeratic beds; but these divisions are not very distinctive, and their character does not appear to be persistent. In a general way, the beds may be said to be coarser in the lower part, and softer and finer in the upper part. In this county the Millstone Grit is but a poor representative of the rock as it occurs in the northern part of Derbyshire. It forms arable land of a soft, sandy character, which, in the neighbourhood of Melbourne, is utilized for market gardens.

COAL MEASURES.

The passage of the Millstone Grit into the Coal-measures is so very gradual in this district that it is difficult to trace a boundary between the two, and there is a considerable thickness of sandstones and shales, which might be classed with either one formation or the other. The Coal-measures in a general way consist of an alternating series of sandstones and shales, with many seams of coal on certain horizons, and some ironstones. The beds vary considerably in different places, as may be seen by a comparison of the pit sections of the various collieries. They cover a large area west of the Charnwood Hills, a great part of which is hidden beneath the overlying Trias. This area may be divided into three distinct districts, running parallel to each other in a north-west and south-east direction. The lowest measures, which

occupy the central portion of the coalfield, have, from their containing no important coal seams, been called the unproductive series. These strata form an anticlinal arch, the axis of which ranges in a north-west and south-east direction through the town of Ashby-de-la-Zouch, so that the beds on either side turn over to the north-east and south-west. On either side of this central part are the two productive coalfields—that on the west comprising the South Derbyshire and Moira Coalfield, while that on the east is known as the Coleorton or eastern division of the coalfield. The first of these, the western coalfield, is cut off from the unproductive measures by the great Boothorpe fault, which forms its eastern boundary. On the west these Coal-measures pass beneath the overlying Trias, and it has not yet been proved how far they extend in this direction; while to the north and south the measures turn up, and the various coal seams crop out in either direction. The deepest part of the coalfield is about Moira. The eastern, or Coleorton, coalfield is almost entirely concealed by the overlying Triassic rocks, so that it is only over a small area at Heather and along the bank below Alton Grange that the Coal-measures come to the surface. They are, however, worked in many collieries, and have been proved by borings to extend as far south as Heather and Desford, where they crop out under the Trias. On the eastern side they extend as far as the great line of fault that runs from Whitwick, by Thornton to Desford, and by which they are

thrown down against the old rocks of the Charnwood range. The coal seams on the two sides of the anticline have not as yet been correlated with one another; there is considerable difference in the nature of the measures on the two sides of the coalfield, and, until further research has been made in the palæontology of these rocks, it is not possible to compare the seams with any certainty.

The principal coal seams, with their thicknesses, are given in the following table :—

Western Coalfield.		Eastern Coalfield.	
Name of Coal Seam.	Average Thickness.	Name of Coal Seam.	Average Thickness.
	ft. in.		ft. in.
Ell	3 6	Stone Smut Rider	3 8
Dickey Gobler ..	3 6	Stone Smut	3 0 to 6 0
Jack Dennis, Block or Watson ..	4 0	Swannington ..	4 0
Little or Five Feet	5 0	Soft or Three Quarters ..	2 0
Main	14 0	Slate Coal Rider ..	1 0
Toad or Little Woodfield ..	4 0	Slate	5 0
Slate	3 8	Yard	4 0
Woodfield ..	6 0	Rattlejack ..	3 0
Stockings	7 0	Stinking or Sulphurous ..	3 0
Eureka	4 6	Main	6 0
Stanhope	4 6	Smoile	3 6
Kilburn	4 6	Upper Lount ..	3 0
		Middle Lount ..	5 6
		Nether Lount ..	6 0
		Roaster ..	3 0 to 8 0

Associated with some of these seams are beds of fireclay, which are of much importance, especially about Moira and Swadlincote,

where they are employed for the manufacture of firebricks, saggers, &c. The clays in the upper part of the measures are also extensively used for sanitary pipes, &c.

At Whitwick Colliery, and as far south as Ellistown, the Coal-measures are overlaid by a sheet of basalt, which was poured out in a molten state, and has charred the measures with which it came in contact.

Although the Coal-measures were probably originally laid down over the country to the east of the Charnwood Hills, they were swept away in pre-Triassic times, and there is evidence from several boreholes that the red measures rest directly upon highly inclined beds of much older date.

PERMIAN.

The Permian of Leicestershire is of a different type from that of Nottingham and the northern counties, and it is very doubtful whether this name should be retained for the breccia, sandstones, and clays that occur in this district.

The formation is composed of coarse, angular breccia, with occasional bands of sandstone and marl. These breccias are formed mainly of fragments derived from the old Palæozoic rocks, consisting of felspathic grits and quartzites, together with slates and igneous rocks, but comparatively few Carboniferous fragments. The rock, from its deep colour, and the subangular character of the included fragments, is, when the beds are thick enough, not difficult to

recognize, or to trace across the country.

There is a marked unconformity between these rocks and the Carboniferous strata below, as well as with the overlying Trias. In fact, they appear frequently to occupy hollows in the old Carboniferous surface, and show that at the close of that period great irregularity existed in the surface of the land.

These breccias may be traced from Measham, along the western edge of the coalfield, by Donisthorpe, Overseal, Linton, and along the high road towards Burton. At Stanton the outcrop turns round, following the northern edge of the coalfield between Bretby and Hartshorn. North of this it probably extends along the valley running down to Milton, but the outcrop is doubtful. It is again found at Ticknall, resting on the limestone, and may be traced thence northwards to Ingleby, on the banks of the Trent. Besides the main outcrop, the rock is seen at Normanton and at Packington; from whence it may be followed along Willesley Park, where it is cut off by the large Boothorpe fault. It occurs again on the west side of this fault at Boothorpe, and also, as an outlier, at Round Hill, Swadlincote, where formerly one of the best sections in the district was to be seen in the clay works.

TRIAS.

The Trias occupies a large area in this part of England, from which it sends out branches in three directions—one to the south, towards

Warwickshire; a second to the north-west, towards Staffordshire and Cheshire; and a third to the north, across Nottinghamshire and Yorkshire. It overlaps the older formations, so that they appear only as isolated outcrops throughout the district, projecting here and there through this thick covering of marls and sandstones. It consists of the following sub-divisions:—

Rhætic—Shales with a bed of coarse sandstone.

Keuper—Red marl with thin bands of sandstone.

Red, white, and brown sandstone with thin beds of marl.

Bunter—Pebble-beds and beds of sandstone.

Of these rocks the Keuper covers the greater part of the district; the Bunter, which is thinning out rapidly towards the east, occurs only around the western part of the coalfield; while the Rhætic Beds crop out as a narrow band, running from north to south nearly across the centre of the county.

BUNTER SANDSTONE AND PEBBLE BEDS.

The only representative of the lower part of the Trias is the quartzose Conglomerate or Pebble Beds, which, further west in Cheshire, constitutes the middle portion of the formation. These Pebble Beds consist of partially consolidated quartzose gravels, which pass upwards into alternations of more or less pebbly sandstone. The pebbles are covered with numerous small indentations, caused by pressure or chemical action, where they are in contact with one another. The

matrix of the rock is often so hard and consolidated that it fractures more readily across the pebbles than between them.

These beds probably have a maximum thickness of about 1000 feet (600 feet were found in the boring at Chilcote), but east of this the thickness does not appear to be so much, and they gradually thin away altogether. The upper part of the formation consists mainly of coarse sandstone, with only scattered pebbles or lumps of quartz, which it is difficult to distinguish from the overlying Keuper sandstone.

The Pebble Beds come to the surface along the valley of the Mease, on the borders of the county, at Measham. They are not very thick here; probably this is near their limit, and they thin out a short distance to the east. At Donisthorpe the beds are much thicker, and cover a somewhat large area about Netherseal and Overseal. North of this they form a conspicuous ridge along the line of the road to Burton, as far as Stanton. Here the outcrop bends round towards the east with the edge of the coalfield, but is soon lost beneath the overlap of the upper beds of the Trias. It comes out again to the east of Bretby, and covers a large area between here and the Trent. The Pebble Beds are well developed in this district, and crop out round most of the valleys, good sections being exposed along the bank of the Trent, near Ingleby, and in the gravel pits at Repton.

A narrow strip of this rock occurs along the edge of the hill at Boothorpe, at Round Hill, near Swadlincote, and along the ridge

from Midway Houses to Bretby Park, where the rock is more massive than is usual in this district. The great beauty of the scenery about Bretby Park and Repton Shrubs is mainly owing to the outcrop of these rocks.

LOWER KEUPER SANDSTONE AND MARLS.

The Lower Keuper Sandstone and Marls vary in thickness from about 150 feet in the western part of the county to not much more than 50 feet in the neighbourhood of the Trent. They are composed of beds of pink and white sandstone, with bands of marl. The sandstones, occasionally, as about Burton, are fairly massive, and are generally false-bedded and frequently ripple-marked At the base they contain beds of breccia,which are well seen at Castle Donington and other places, but become most marked on the flanks of the Charnwood Hills, about Thringstone and Grace Dieu. At Weston Cliff, opposite Donington Park, footprints of *Labyrinthodon* have been found in these sandstones. Near Burton they contain a considerable amount of bitumen. The upper beds pass very gradually into the overlying marls, so that the boundary between them is difficult to fix, especially in pit sections or borings.

The Lower Keuper Sandstone, in a general way, comes to the surface around the outcrop of the Coal-measures, and forms an encircling ring round the visible part of the coalfield, except in the north, between Bretby and Staunton Harold, where lower beds have been forced up. There is also a large outlying mass covering the hills to the north of Ashby.

The sandstones have been used as a building-stone to some extent, especially near Burton, but the rock is generally too soft to be of much value. The rock is very porous, and, consequently, a valuable water-bearing stratum; large supplies are obtained from it at Coalville, Ellistown, and other places.

KEUPER MARL.

The Keuper Marl is one of the principal formations in the district, and covers a very large area of surface; in fact, most of the ground west of Leicester is composed of this rock. It overlaps unconformably the rocks beneath, and, although along its junction with the Lower Keuper Sandstone it succeeds that formation quite regularly—in fact, the one passes into the other by almost insensible gradations—still, where the oldest rocks come to the surface, as around Charnwood Forest and at Enderby and Croft, it abuts directly against them without any intervening beds of Lower Keuper Sandstone, showing that these older rocks must have stood up as islands when the Trias was deposited.

These beds consist of red and mottled marls, with thin beds of grey and white sandstone, known as "skerry," which occasionally, at two horizons, one near the top and the other near the base of the series, thicken out locally into sandstones of some importance. One of these occurs on the west side of the town of Leicester, where there is a massive bed of soft white sandstone about 20 feet thick, which is well seen in the railway cutting on

the line to Burton. It is, however, quite local, and no similar bed has been found anywhere else in the county. Thin beds of gypsum occur at intervals throughout these marls, the most notable being at Chellaston, near Gotham, and near Syston; at the two former of these places it is worked.

With the exception of the projecting peaks of Charnwood Forest, and the broad anticline of Carboniferous rocks between Measham and the Trent, the Keuper Marl covers the whole of the county west of a line running along the Soar valley, and continuing southward in the direction of Rugby. It is thickest along the Soar valley and to the south of Leicester. On the northern side of the coalfield, about Breedon and near Burton, it is broken up into several outlying patches capping the higher ground in those districts. A great part of the ground south of the Charnwood Hills is covered by Boulder-clay and other Drift deposits, so that the Keuper Marl only appears along the valleys that have been cut through these later beds. North of these hills the Drift is much thinner and the Marl comes to the surface over nearly the whole of the district, as far as the Trent.

Rhætic.

At the top of the Keuper Marl there are a series of beds which, although they are classed with the Trias, are in mineral character more closely allied to the overlying Lias. They rest on beds of tea-green Marl at the top of the Keuper, which were at one time included

with them, but there is a sharp line of division; this is usually occupied by a thin band of conglomerate or coarse sandstone, having a peculiarly gritty feel, known as the Bone-bed. This bed, although sometimes absent, generally varies in thickness from ½ inch to 2 inches, or rather more. When met with at a little distance from the surface it is very hard and pyritic, but nearer the outcrop it becomes decomposed and much more brittle. It is a highly pyritous and impure sandstone, full of the fragmentary remains of saurians and fish. The Bone-bed is succeeded by a thickness of about 17 feet of dark, laminated shales, containing *Avicula contorta* and other bivalves in considerable abundance. These beds pass up into a series of bluish or grey shales, having a thickness of 20 feet, and which are not unlike the tea-green Marls below.

The finest section of these beds that occurs anywhere in the district is that in the brick-yard at South Wigston, close to the Glen Parva station. The Rhætic beds here have a thickness of nearly 40 feet, which may be taken as about the average in this part of the country. They form a narrow band at the foot of the Lias, which, although very obscure in many places, may be followed across the county. South of Wigston the outcrop has not yet been traced, but there is no doubt that it occurs some distance to the west of Lutterworth, although the ground here is deeply covered by Drift gravels, which entirely conceal the rocks beneath. At Wigston the outcrop would probably have been missed were it not for the fine section mentioned

above, but as we approach Leicester the evidence becomes clearer, and several sections in these beds have been proved. The chief of these was that in the brickyard at Spinney Hills, on the eastern side of the town, which was described in 1874 by Mr. W. J. Harrison. These sections are now all hidden by the extension of the town, but the outcrop of the Rhætic beds can be easily followed northwards, along the edge of the steep bank on the east side of the Soar valley, as far as Barkby. In crossing the Wreake valley the outcrop becomes very obscure, and these beds are not seen again until they appear on the other side of a fault at Barrow-on-Soar. North of this the outcrop becomes clearer, and these shales, together with the lower portion of the Lias, form a series of outlying hills near East Leake and Gotham; beyond this the outcrop turns away to the east, along the south-east side of the Trent valley.

LIAS.

The Lias covers nearly the whole of the eastern half of the county, and forms a broad band of country stretching between the Soar valley and the Oolite hills of Northamptonshire, Rutland, and Lincolnshire. This ground is thickly overspread by Glacial deposits, so that in general it is only along the stream courses that the solid strata are seen. It forms heavy clay land, which is nearly all in pasture, and affords one of the most renowned hunting grounds in England. The formation is separable, both from its petrological

character and the nature of its organic remains, into three distinct horizons, Lower, Middle, and Upper, each of which is further divisible into zones characterized by particular assemblages of fossils.

LOWER LIAS.

The Lower Lias consists of a series of thin argillaceous limestone bands and shales in the lower part, and a thick series of clays or shale in the upper. It occupies a broad stretch of country, extending from Rugby, by Market Harborough and Melton Mowbray, to that part of Lincolnshire between Grantham and Newark. Over a large part of this district the beds are completely hidden by Boulder-clay; it is, therefore, chiefly beneath the Middle Lias escarpment, and along the numerous small streams flowing into the Soar, that exposures in the rock are met with. These sections show that the Lower Lias may be separated into the following sub-divisions or zones, characterized by species of Ammonites :— *Ammonites planorbis*, *Ammonites angulatus*, *Ammonites Bucklandi*, *Ammonites semicostatus*, *Ammonites oxynotus*, *Ammonites Jamesoni*, and *Ammonites capricornus*. The lower part of these beds is best seen in the lime pits at Barrow, while the zones above may be roughly made out from the numerous stream sections which cross them in the district east of Leicester.

The bands of limestone in the lower part are burnt for lime at Rugby, Kilby Bridge, Barrow-on-Soar, and Normanton Hills. It also makes a noted hydraulic cement.

To the north of Loughborough, where there is little Drift, the regularly bedded character of the lower portion of the Lias gives rise to characteristic flat-topped hills, with sharply-cut escarpments, which are very conspicuous about West Leake and Gotham.

MIDDLE LIAS.

The Middle Lias consists of two important divisions, the Rock-bed and the shales below, corresponding to the two palæontological zones of *Am. spinatus* and *Am. margaritatus*. These are easily recognised wherever the rock crops out free of Drift. The thickness of the Rock-bed varies considerably in its passage across the county; it reaches its maximum development along the western escarpment about Billesdon and Burrow-on-the-Hill, but nearly thins away altogether at several places towards the east and south.

Where the Rock-bed is best developed it forms a fine escarpment overlooking the Lower Lias plain, as at Life Hill, near Billesdon, and at Burrow-on-the-Hill, at both of which places it rises to an elevation of 690 feet above the sea. North of Melton Mowbray it also forms a bold escarpment, running from Ab Kettleby, by Harby Hill, to Belvoir Castle. About Market Harborough the rock is much thinner, and does not form the conspicuous escarpment it does further north.

The Rock-bed is an open, porous rock, which is very ferruginous in places, and consequently copious springs frequently burst out at its base. To the north of Melton Mowbray it is extensively worked for ironstone. When the

rock is free of Drift it gives rise to a red soil, which is very productive, and nearly always under the plough, forming a marked contrast to the clay land above and below, which is nearly always in pasture.

UPPER LIAS.

The Upper Lias may be separated into the following sub-divisions in descending order :—

Leda ovum Beds. Clays with numerous bands of septaria.

Communis Beds. Laminated blue clays with fossiliferous bands.

Serpentinus Beds. Clays with nodules of limestone (Ammonites abundant).

Paper-shales with Fish and Insect Limestones.

The main portion of the Upper Lias usually forms a steep bank, rising above the outcrop of the Rock-bed, but exposures in these clays are so rare in this district that it is difficult to make out the true succession. The thickness of the beds varies from 110 feet to about 200 feet, being thicker to the east than what they are to the west.

The outcrop runs along the eastern border of the county, from Market Harborough northwards, covering a large area in the neighbouring county of Rutland.

INFERIOR OOLITE.

It is only quite the lower part of the Oolite formation that comes into this district, and it covers only a very small area, consisting of a few outlying hills along its eastern border. The beds consist of the two principal divisions

—the Northampton Sand and the Lincolnshire Oolite.

NORTHAMPTON SAND.

This rock, which is variable in character, is usually a rich ironstone. When not altered by the percolation of water, it is a hard compact rock of a blue or green colour, composed of carbonate and silicate of iron, and consisting of rounded Oolitic grains. In this district, owing to the small thickness of rock that remains, and, therefore, to its greater exposure to the weather, very little calcareous matter is left, and the residue consists almost entirely of soft ferruginous sandstone. This sandstone has a peculiar "cellular" structure, which seems to be caused by the concentration of hydrated peroxide of iron along the bedding planes and joints that have split up the rock into roughly rectangular blocks. This ironstone passes up into brown sands, which are succeeded by white sands, with occasional layers of clay and lignite. To these upper beds, whose average thickness does not exceed 40 feet, the name Lower Estuarine Series has been given.

Except in the north-east at Waltham and Croxton Kerrial, the main escarpment of the Inferior Oolite lies beyond the borders of the county. There are, therefore, only a few small outliers that occur in this district. These are found capping the outlying hills at Neville Holt, Hallaton, Loddington, Robin-a-Tiptoes, and Whatborough. North of Melton Mowbray the rock forms a projecting spur at Waltham and Croxton Kerrial.

The beds of Northampton Sand form a light, rubbly soil, well adapted for the growth of corn, but the areas covered by the rock in this district are too small to be of any importance.

LINCOLNSHIRE LIMESTONE.

The upper division of the Inferior Oolite, the Lincolnshire Limestone, occurs as a small outlier on the hill at Neville Holt, and on the projecting spur at Waltham.

The character of the rock is somewhat variable; in some places it is a valuable freestone, but in others it is a coarse, shelly ragstone, interstratified with soft, marly, or oolitic, limestone. Sometimes the rock consists of beds of slightly argillaceous limestone, of compact, sub-crystalline, or but slightly oolitic texture, abounding with corals, which are usually converted into masses of finely crystalline carbonate of lime. At other times the rock consists almost wholly of small shells or fragments of shells, sometimes waterworn and sometimes encrusted with carbonate of lime.

GLACIAL DRIFT, VALLEY DEPOSITS, AND ALLUVIUM.

The Glacial Drift, which covers a large portion of the formations previously described, is thickest towards the south and central parts of the district. Towards the north it gradually thins out, and very little Drift occurs north of Charnwood Forest, or beyond the Wold Hills, on the north side of the

Wreake Valley. It consists of Boulder-clay, with many alternations of gravel and sand of various degrees of coarseness. Many of these differences appear to be due to merely local conditions, and it is probable that some deposits of slightly different character are really contemporaneous. The main fact drawn out from a study of the Drifts is that they are of two distinct ages; the one having its included fragments, consisting principally of quartzite pebbles, derived from the north-west; the other, containing detritus of the Chalk and Oolite, from the east.

The greatest elevations at which the Drift is found is on the Charnwood Hills, where it occurs slightly above the 600 feet contour line; and on Life Hill, near Billesdon, where it rises to 730 feet, the highest ground in the neighbourhood, so that there is no evidence as to what its maximum elevation may have been. It descends towards the larger existing valleys, showing that the present lines of drainage nearly coincide with those in pre-Glacial times.

The Drift occasionally contains enormous transported masses of Oolite, Chalk and Marlstone. These have been noticed at Corby, to the north of Rugby, to the north of Melton Mowbray, and elsewhere. Some of them are so large that quarries have been opened out in them.

Besides these two Boulder-clays, there is a later deposit, which occurs along the lower ground, and in the bottom of valleys which have been denuded since the older glacial beds were formed. This Drift occurs along

the small tributary valleys about Barrow and Sileby. It is never of any great thickness, and appears to be principally derived from the pre-existing Boulder-clays.

Along the borders of all the main rivers there are well marked terraces composed of stratified gravel and loam. These gravels are of much importance along the valleys of the Trent and Soar, and form terraces about fifteen or twenty feet above the present alluvium of the rivers, from which they usually rise in a sharp bank. A great number of mammalian remains have, from time to time, been found in these gravels.

PHYSICAL HISTORY OF THE ROCKS.

As a sequel to this short sketch of the character and position of the rocks, a brief account may now be given of their history, and the physical geography of the vast periods of time during which they were being laid down. In this part of the Midlands the narrative begins at the most remote period of geological antiquity, when the distribution of sea and land was very different from what it is at the present day, and when, in fact, the boundaries between them were first beginning to put on any definite shape. In this far-distant time, when the mountain ranges were yet unformed, it is difficult to obtain much evidence upon which to reconstruct the physical geography of the period. In order to understand the evidence, it is necessary to study the changes which have affected a far larger area than that with which we are now concerned.

The pre-Cambrian era is naturally the one about which we know least. No fossils have been found in these rocks, except some doubtful markings, which may be worm tracks. That it was one of great volcanic activity is evident from the character of the rocks and the violent disturbance to which they have been exposed. The evidence of this disturbance is most marked in the north-west region of Charnwood Forest, and it is probable that one of these volcanoes existed in this region, from which were thrown out vast quantities of lava and ashes into the neighbouring seas and lakes, in which deposits of pebbles, sand, and mud were being laid down.

Following this volcanic activity a long period elapsed, during which these pre-Cambrian rocks probably formed a mountain chain that was exposed to extensive denundation, and worn into a series of peaks and ridges, of which some remain to the present day. A great break takes place in the geological succession in this region; the Silurian and Old Red Sandstone formations are both absent within the area of the county, although it is possible that some representative of these strata may eventually be discovered beneath the older rocks abutting against the Charnwood Hills, or the thick covering of Trias to the east.

When this old land, of which the Charnwood Forest district then formed a part, partially subsided, it seems to have formed the southern margin of a land-locked sea, extending along what is now the western borders of Derbyshire and Yorkshire, to the

south of Scotland. In this depression was deposited the thick mass of limestone that covers this district; while in the extreme north and south, where the old land surfaces seem to have principally existed, a greater amount of muddy or sandy matter was brought in. This limestone was deposited in comparatively shallow water against the ridge of pre-Cambrian rocks, as is shown by their relative position and by the dolomitic character of the limestone in this region. In course of time a change took place in the nature of the deposits, and beds of mud and sand, which had at first been confined to the vicinity of the shore, were spread over nearly the whole of this basin, and formed the shales, sandstones, and grits that overlie the limestone. Later the sea became converted into a freshwater lake or large estuary, while the further filling up of the water or the elevation of the land gradually produced low, swampy flats, intersected with land surfaces, on which vegetation quickly sprung up, and furnished the material for beds of coal. During this later period constant oscillations of level took place, producing the frequent alternations of shale and sandstone, latterly with coal seams, which characterize the Coal-measures.

After the close of the Carboniferous period a large amount of denudation took place, which swept away much of the strata that had been laid down during that time, so that in some places all the sub-divisions above the limestone were removed, while in others it was only the uppermost members of the

Coal-measures that were carried away. It is on the western side of the coalfield that this principally took place, where the unconformity between the Coal-measures and the overlying rocks is most marked.

The Permian of this district consists mainly of angular breccia, composed very largely of local rocks which can be matched in the vicinity, and show little sign of having travelled far from the parent rock. There seems every probability that such fragments were formed by the weathering of the older rocks, and were accumulated along the precipitous slopes of mountain valleys, from which they were swept forward by violent torrents, and filled in depressions in the old Carboniferous surface.

With regard to the next period, the Trias, there is considerable difference of opinion among geologists as to the conditions under which the earlier beds of the formation were laid down. It is, however, pretty generally accepted that a large continent existed in this region, and that there were vast arid plains covered with sand and shingle, similar to the deserts of the present day. This was followed by the depression that ushered in the conditions of the Keuper Epoch, when an extensive inland sea was formed, in which beds of salt and gypsum were deposited, mingled with the material brought in from the surrounding lands. Towards the close of this period these inland seas became dry, or nearly so, either from filling up with sediment or from elevation of the ground; as is proved by the thin beds of ripple-marked

sandstone in the upper part of the Keuper Marl, which are covered with pseudomorphous crystals of rock salt, and which could only have been formed on the margin of these lakes. A gradual subsidence of the ground now took place, probably chiefly on the eastern side, which let in a shallow sheet of salt water from the open sea. In this shallow water the Rhætic Beds were deposited, containing a fauna that had migrated from a deeper Rhætic sea, but here found the conditions not so well suited to their development. The stunted nature of the mollusca shows that the conditions of this sea were not suitable for vigorous growth; while the character of the Bone-bed, with its fragments of bones, scales, and teeth, testifies to the sudden irruption of the water, which exterminated the saurians and fish previously existing.

By a continuation of the depression the water became deeper and the general conditions more favourable for marine life. The passage from the Rhætic, with fragmentary remains to the lower beds of Lias, with ammonites, fish and saurians, shows a gradual change from shallow lagoons to an open sea. As we advance further in the period these conditions become more marked, both by the abundance of ammonites and belemnites, which characterize the beds, and also by the great thickness of argillaceous strata. Particular groups of ammonites came in in great abundance throughout certain beds, the Arietites in the Lower Lias, the Amalthei in the Middle Lias, and the

Falciferi in the Upper Lias; it is therefore evident that great periods of time must have elapsed while these changes of form took place in the process of evolution.

Towards the close of the Liassic Period the bed of the sea was elevated, or the water became shallower from the gradual accumulation of material. The muddy waters of the earlier period were cut off, and the sea became clearer in which the sandy and calcareous beds of the lower portion of the Oolites were laid down. Some of the latter present evidence of having been true coral reefs, in the sheltered recesses of which lived the delicate species of mollusca and echinodermata that are so abundant in these rocks.

With the physical history of the upper part of the Oolites, the Cretaceous rocks and beds above, which do not come into this district, we are not at present concerned. In Leicestershire a long period elapsed, in which the different strata were worn down, and the hills and valleys produced nearly as we see them now. In course of time these became overspread by the extension of the ice-sheet from the north, which at the period of greatest cold reached as far south as the Bristol Channel and the valley of the Thames. By this great ice-sheet the underlying rocks were ground up, and carried away to form the Boulder-clays and gravels which are spread over the surface of the country.

In Leicestershire it is found that these glacial deposits are of two ages, and that the glaciation which produced them emanated from two distinct sources. The earlier came

from the north-west and derived its material entirely from rocks cropping out in that district; while the latter, although containing material derived from the first glaciation, is made up principally from fragments derived from the Oolites and Cretaceous rocks, which must have come from an easterly direction. The large quantity of gravel and sand associated with this Boulder-clay seems to point to the fact that the termination of the ice-sheet cannot at times have been far from this district, although it probably varied considerably at different periods. The Midland Counties probably occupied what was the fringe of this great glaciation, and the frequent advance and retreat of the ice over this district produced along its edge the complicated series of torrential and muddy deposits which now cover this part of the country.

After the retreat of the ice-sheet, the main rivers, the Trent and the Soar, nearly resumed their old courses, clearing away the greater part of the Drift that had accumulated in these valleys, while the smaller tributaries cut deep channels through the great Boulder-clay plain, as is so strikingly shown in the geological map of the district around Leicester. While this was going on thick beds of stratified gravel and loam were deposited along the margins of the rivers, and formed terraces, in which the remains of the following species of mammalia have been found:—*Bison bonasus*, var. *priscus*, *Bos taurus*, var. *primigenius*, *Cervus elaphus*, *Elephas antiquus*, *E. primigenius*, *Rangifer tarandus*, and

Rhinoceros leptorhinus. It is evident that these gravels were deposited at a time when there was a greater volume of water in the rivers, and when they flowed at a higher level than they do at the present day.

This brings us to the close of what we may consider to have been the physical history of this district. The subject is one which necessitates a certain amount of speculation, but there are many facts which indicate the various changes that took place in the physical geography of the country. There is still much to be made out and interpreted; especially is this the case with regard to the Pleistocene Epoch, about which there are as yet many difficulties to be cleared up; and there is no doubt that further research amongst the Drift deposits of the Midlands will help to throw much light on the general glaciation of the country.

NOTES ON THE PALÆONTOLOGY OF LEICESTERSHIRE.

By A. R. HORWOOD, *Sub-Curator, Leicester Corporation Museum.*

THERE are few counties in England and Wales, with the exception, perhaps, of the Bristol district, that contain so varied an extinct flora and fauna as Leicestershire, within the prescribed area of the political limits which divide it from surrounding counties.

The formations from which these are derived are, as would be expected from its central position, chiefly confined to the Palæozoic and Mesozoic systems, though a considerable number of Pleistocene and Recent Vertebrata of the Cainozoic system are also to be met with.

If we regard certain portions of the Charnian system, in which traces of worm-tracks have been found, as the homotaxial equivalents of the Longmynd group, as has been suggested, some portion of the older rocks of the Charnwood Forest district must then be included in the fossiliferous series, but the evidence on this point is, as yet, very scanty. If we exclude these ancient rocks, which are usually classed as pre-Cambrian, however, the succession of the fossiliferous formations represented in the county, taken from highest to lowest, will then be as follows :—

Pleistocene and Recent	Recent and Post-Glacial	Alluvium. Lacustrine Clay. River Terraces. High-Level Valley Gravel.
	Glacial	Boulder Clay with beds of Sand and Gravel (Derived fossils only).

Jurassic	Inferior Oolite	Lincolnshire Limestone. Northampton Sand.
	Lias	Upper Lias. Middle Lias. Lower Lias.
Triassic	Rhætic	Rhætic.
	Keuper	Tea-Green Marls. Upper Keuper Marls (practically unfossiliferous) and Sandstones. Lower Keuper Marls and Sandstones (locally apparently unfossiliferous).
	Bunter	Conglomerates (unfossiliferous).
Permian	Breccias with Red Marls (unfossiliferous, with the exception of some derived hæmatite nodules).	
Carboniferous	Upper Carboniferous	Middle Coal Measures. Lower Coal Measures. Millstone Grit.
	Lower Carboniferous	Carboniferous Limestone. Shales, and Limestone.

It may be well here to give a brief summary of the best exposures in each formation, or where their flora and fauna may be studied most advantageously.

Carboniferous Limestone.—The outcrop of this formation lies entirely in the N.W. of the county, and inliers are to be met with at Breedon, Breedon Cloud, Ticknall, Calke, Dimminsdale, Barrow Hill, Osgathorpe and Grace Dieu. Some of these, just over the Derbyshire border, but forming an integral part of the Leicestershire series, are best reached

from Leicester by the Burton line (M.R.), a branch from Ashby running on to Worthington. Grace Dieu and the neighbouring exposures are within easy reach from Coalville.

Millstone Grit.—This division of the upper Carboniferous has yielded few specimens, but at Calke Park plant-remains were formerly found. Other exposures are Ticknall, Dimminsdale, Stanton, Castle Donington, and Melbourne, all of which may be reached by rail from Ashby, whilst Thringstone is close to Coalville.

Coal Measures.—The Leicestershire and the South Derbyshire coalfields, though separated on political grounds, are geologically one. The lowest part of the formation is that which we find at the surface in the neighbourhood of Ashby-de-la-Zouch, and these beds can be best examined from there. Unproductive of workable coal-seams generally, they are also deficient in fossils, few having been met with in this district. The productive areas on either side of this central tract, consisting in the higher parts, and to a considerable depth, of Middle Coal-measures, yield a varied flora and fauna. The Eastern division which is covered up by the Red Marl, and can be best seen in pit-sections, includes such collieries as Desford—the most south-easterly—Bagworth, Ellistown, Ibstock, Nailstone, Snibston, Whitwick, Coleorton, Lount, and Staunton Harold. All of these collieries are readily reached by rail from Leicester by stations on the Leicester and Burton line, as far as Swannington, except the two last, which may be reached from Ashby.

The Western or Moira district is best studied by taking Moira and Donisthorpe as a base, for in that neighbourhood there are a large number of collieries which are situated close together, and here also some of the highest of the local Coal-measure rocks, the Moira Grits, are exposed at the surface. The Rawdon, Reservoir, Bath, and Marquis Pits are among the oldest and most interesting sections, the first having been figured in detail by Mammatt. Further north the Main coal and some of the other higher seams are also exposed in open workings, and can be easily reached from Swadlincote or Church Gresley, *e.g.*, Bretby, Gresley,

Swadlincote, Stanton, Newhall, Netherseal, &c.

Keuper.—In Leicestershire only the Upper Keuper Sandstone and Grey Marls and the Tea-green Marls are fossiliferous, though elsewhere the Lower Keuper Sandstone and the Red Marl of the Upper Keuper are both found to contain organic remains.

The cutting on the Leicester and Burton line, near Shoulder-of-Mutton Hill, and the little ballast-quarry in the new recreation ground, or Western Park, are easily reached by electric tram from the Clock Tower to Hinckley Road, and in these strata fossils have been found. The Tea-green Marls are perhaps best seen in the fine section at Wigston, which is close to Glen Parva Station (L. & N.W.R.). Here also is the best exposure now of the *Rhætic* beds. Formerly an excellent section of these last existed at Spinney Hills, but this has long ago been covered up owing to building operations and the extension of the borough. Just over the border at East Leake, and also at West Leake and Gotham, in Nottinghamshire, the Rhætics were well exposed during the construction of the Great Central Railway, but they are now much obscured.

Lower Lias.—The finest quarries in England for the production of hydraulic lime are those at Barrow-on-Soar. The place has been famed for this and for its magnificent Saurians for nearly a century, as is well known. It is easily reached by the Midland Railway, the quarries being close to the station of Barrow. Less notable sections are to be met with in the same district; whilst in the south, Kilby Bridge, close to Glen Magna Station (M.R.), furnishes another good section, and, in the extreme north, Normanton and Gotham also present excellent exposures, best reached from Hathern and Kegworth stations (M.R.) respectively.

There is a worn section at Crown Hills, Evington, close to the borough, and the Glen Parva section also contains the lowest beds. The higher beds are exposed near the escarpments of the Middle Lias, as at Lowesby, Billesdon, Burrough, and Little Dalby, all of which may be reached from stations on the G.N.R. from Leicester to Melton.

Middle Lias.—The best exposure of the Marlstone rock-bed is at Tilton, and in fact all the exposures

in this formation are reached by the last-named line and a branch from John o' Gaunt to Market Harborough. At one time the East Norton Embankment, constructed from blocks from the Tilton rock-bed, proved practically the sole hunting-ground for fossils from this horizon, but it has since been met with at other localities, *e.g.*, Billesdon Coplow. Burrough Hill yields another good exposure of portion of the Marlstone series. Owston, Whissendine, Illston, Slawston, Hallaton, and Belton are other localities in this district which exhibit good exposures of either the *margar itatus*—or *spinatus*—beds.

Upper Lias.—At some of the above localities, and also at Allexton, Keythorpe, Loddington, Burrough, and Somerby in the same district, reached by rail in the same manner, the Upper Lias is found resting on the Marlstone, or forming a distinct exposure, varying in thickness from a few feet to twenty or more.

Inferior Oolite.—The Northampton Sands occur as outliers at Neville Holt, in the same district as the Lias. It is also seen at Slawston Hill, Hallaton, Whadborough, Colborough, Barrow Hill, Loddington, and Launde. The section at Neville Holt was formerly 40 feet in thickness. An escarpment of the Oolite is met with at Waltham-on-the-Wolds and Croxton Kerrial. The Lincolnshire Limestone caps the Northampton Sand at Neville Holt, and is found also further north at Waltham, but the main exposures of this and the famous Collyweston Slates, which are found at Collyweston, near Stamford, are outside the county boundary.

Pleistocene and Recent.—In the Soar Valley, the river gravels and recent alluvium have produced an interesting collection of vertebrata, and in the same deposits relics of Neolithic Man survive in the shape of flint scrapers, &c. The sandpits at Belgrave, Aylestone, and some outlying districts, *e.g.*, Barrow-on-Soar and Loughborough, have furnished fine specimens of mammoth tusks. All of these localities are in the Soar Valley, and the remains are chiefly from low-lying ground, but sometimes they have been found at a high level. In the alluvium sub-fossil remains of recent land and

fresh-water shells associated with plants and other organisms occasionally occur.

The following account deals with the main palæontological features of the district. Within the limits of this paper it would be impossible to give a complete description of the Fossil Flora and Fauna of all the formations represented in Leicestershire, nor is this necessary, as excellent lists will be found in the Geological Survey memoirs on the district and other works.*

CARBONIFEROUS LIMESTONE.

Though not to be compared with the rich Fauna of these beds in North Derbyshire, at Ticknall, and from Breedon and Breedon Cloud, a considerable number of genera and species have been collected by the Repton School scholars and by others. The Fossil Corals include *Alveolites septosa*, *Campophyllum cylindricum*, *Clisiophyllum coniseptum*, *C. turbinatum*, *Cyathophyllum archiaci*, *Favosites parasitica*, *Lithostrotion*, *Lonsdaleia*, *Monticulipora tumida*, *Zaphrentis enniskilleni*, *Z. phillipsii*, the last four confined to Ticknall. At Ticknall also have been found the only traces of worm-tubes, *Serpula*. A Trilobite of the genus *Phillipsia* occurs at Ticknall and Dimminsdale (L.M.)† With regard to the distribution of fossils at Ticknall and Breedon Cloud, it may be noted that at the former place Corals, Echinoderms, Brachiopods, and Polyzoa are more abundant, and the Fish are confined to that locality, whilst at the latter Gasteropoda, Lamellibranchia, and Cephalopoda are most abundant.

The Gasteropoda are badly preserved, but we may mention *Pleurotomaria rotundata*, *Bellerophon*, *Euomphalus pentangulatus* (at Ticknall only, all the rest at Breedon Cloud), *E. tabulatus*, *Platyschisma glabrata*, *P. helicoides*, *Bellerophon macrochilina*, *Naticopsis*, *Turbonitella biserialis*. A Pteropod, *Conularia*, occurs at Breedon Cloud.

The Lamellibranchia met with so far are:—*Allorisma sulcata*, *Aviculopecten plicatus?*, *Cardio-*

* Descriptions of sheet 141 (1905), sheet 155 (1900) sheet 156 (1902), C. Fox-Strangways.

† L.M. = Leicester Corporation Museum Palæontological Collections. These are arranged biologically with their recent homologues.

morpha egertoni, *C. orbicularis*, *Conocardium*, *Edmondia rudis*, *E. sulcata*, *Leiopteria*, *Parallelodon cancellatus*, *P. fallax ?*, *P. haimeanus*, *Pinna flabelliformis*, *Protoschizodus æquilateralis*, *Pseudamusium ellipticum*, all of which, except *Allorisma* and *Conocardium*, are confined to Breedon Cloud, these two last in turn being restricted to Ticknall.

The Cephalopoda consist of *Artinoceras sowerbyi*, *Cyrtoceras gesneri*, *Glyphioceras crenistria* (confined to Ticknall, whilst all the others are from Breedon Cloud), *G. sphæricum*, *Nautilus*, *Orthoceras*, *Stroboceras sulcatum*.

The Echinodermata consist of the following Crinoids, *Actinocrinus polydactylus*, *Platycrinus*, *Poteriocrinus*, *Rhodocrinus*, and the Echinoid *Archæocidaris urei*.

The Brachiopoda, as in all Carboniferous Limestone districts, are numerous, being found both at Ticknall and Breedon Cloud in great numbers, some genera being rich in species, *e.g.*, *Athyris*, *Productus*, and *Spirifera*. They consist of *Athyris ambigua*, *A. expansa*, *A. roissyi*, *Chonetes laguessiana*, *Cyrtina* (?) *carbonaria*, *Cyrtina septosa* (common), *Dielasma hastata ?*, *Discina cf craigi*, *Orthis michelini*, *O. resupinata*, *Orthotetes crenistria* (also at Dimminsdale, L.M.), *Productus cora*, *P. giganteus* (common), *P. humerosus* (common in the form of internal casts called "Frogs" by the quarrymen), *P. longispinus*, *P. plicatilis*, *P. punctatus*, *P. pustulosus* (common), *P. scabriculus*, *P. semireticulatus* (common), *P. spinulosus*, *P. striatus*, *Rhynchonella acuminata*, *R. pleurodon*, *R. pugnus* (common), *Spirifera crassa*, *S. duplicicosta*, *S. glabra*, *S. integricosta*, *S. lineata*, *S. ovalis*, *S. striata*, *S. trigonalis*, and var *bisulcata*, *Strophomena rhomboidalis*, *Syringothyris cuspidata*.

The Polyzoa, with the exception of *Fenestella*, which is also found at Breedon Cloud, all come from Ticknall, and are *Ceramopora megastoma*, *Fenestella*, *Retepora*, *Rhabdomeson gracile*.

A large number of fish-remains were found by E. Wilson at Ticknall, and were recorded by Dr. A. Smith Woodward* in the British Museum Catalogue of Fossil Fishes, having been presented by Wilson

* Catalogue Fossil Fishes, Vol. I.

to the National collections. They consist of the following genera and species, arranged in alphabetical order of genera and species*:—*Cladodus mirabilis, C. striatus, Copodus prototypus, C. spatulatus, Ctenoptychius lobatus, C. serratus, Cyrtonodus hornei, Deltoptychius acutus, D. gibberulus, Janassa imbricata, Megalichthys, Orodus moniliformis, Petalodus acuminatus, Petalorhynchus psittacinus, Pleuroplax woodi, Pœcilodus jonesi, Pristodus benniei, Psammodus rugosus, Psephodus magnus, Xystrodus striatus.*

MILLSTONE GRIT.

At Calke Park stems of *Sigillaria* and *Lepidodendron* were met with years ago by Prof. Hull, but recently nothing has been ascertained as to the faunal contents of this formation in the county where it is exposed at the surface. Certain rocks, low down in the Coal-measures, closely resemble millstone grit, and have a somewhat similar Fauna, but their existence at great depths remains to be settled.

COAL-MEASURES.

No up-to-date account of the palæontology of the Leicestershire and South Derbyshire coalfields has so far appeared†, but two important contributions, both dealing with the Moira or Western district, were published in 1834 and 1869. The former, by Mammatt, dealt with the fossil plants found in the sections pierced by the Hastings and Grey shaft (now disused) and the Rawdon shaft (still working), and the exact horizon of these plants was indicated in the coloured sections of the shafts, also included in his valuable work. Unfortunately, the 102 plates figuring these plants were inaccurately drawn, and it is almost impossible to determine with any certainty what plants they were intended to represent. The other contribution, by Molyneux, contains an extremely valuable list of the mollusca and fish met with at a number of

* For the purpose of reference this system has been followed in nearly every case.

† A contribution on this subject by the writer will be found in the General Memoir on the Coalfield, shortly to be published by the Geological Survey, and does not, for that reason, appear here.

localities and at various horizons, all of which are indicated. Recent investigations prove his identifications to have been correct, many of the same species occurring at similar horizons elsewhere. He pointed out the existence of marine bands in the Western district, and later work has extended our knowledge of these, but as the horizons at present being worked are extremely limited, and many old pits are closed down, progress in this direction has been rather slow, though they have been established in the Eastern district at Nailstone.

KEUPER.

The fossiliferous horizons of the New Red Marl and Sandstone in Leicestershire all belong to the Upper Keuper, and are—(*a*) The Upper Keuper Sandstone, (*b*) Grey Marls (?Red Marls), and (*c*) the Tea-green Marls.

From (*a*) Plant* and others have obtained the following organic remains from exposures at Dane Hills and Shoulder-of-Mutton Hill, ballast-cutting in the Western Park, and on the Leicester and Burton (formerly the Leicester and Swannington) Railway, and also at Aylestone Road, Belgrave, and Bede House Meadows:—Algæ, *Equisetites sp.*, *Voltzia* sp., Plant-remains (L.M.),† Worm-tracks or Crustacean tracks or galleries (L.M.), *Estheria minuta* (L.M.), *Estheria sp.*, *Acrodus keuperinus*‡ (L.M.), *A. minimus*, *Acrodus sp.*, *Colobodus frequens*, *Gyrolepis quenstedti*, Fish-teeth, spines, and scales, Amphibian bones (L.M.), Reptilian remains, Footstep of Labyrinthodon.

From (*b*) Mr. Harrison obtained "casts of the spreading leaves of *Voltzia*" *sp.* impressed on Red Marl, which he states is the "only fossil which the latter rock has yielded to our search in this county." Up to the present this still constitutes the only record.

* John Plant, 1850, recorded an organism for which he proposed the name *Gorgonia keuperi*, but this is no Coelenterate, and is probably nothing more than annelid or crustacean tracks, &c. James Plant, 1856, recorded *Echinostachys oblongus*, but this is also an error.

† L.M. = Palæontological Collections of the Leicester Corporation Museum.

‡ A very fine dorsal fin-spine and some teeth of this fish are exhibited in the Leicester Museum, where specimens of most of the other fossils are represented.

From (*c*) the Tea-green Marls at the Spinney Hills (now, unfortunately, covered up), the following have been obtained :—*Estheria minuta* (L.M.), Insect wing*, Scales and teeth of an Actinopterygian fish, *? Semionotus* sp.† (L.M.).

RHÆTIC.

The old exposures at the Spinney and Crown Hills are covered over, but a fine section is still to be seen in the brick-pit close to Glen Parva station. The bone-bed at both the first and last named places has yielded numbers of teeth, scales, and bones of extinct Fish, Amphibia, and Reptilia. Another exposure at East Leake, on the G.C.R., is just outside this area, but the Fauna has here been included. From the Spinney Hill beds, first described by Harrison, and from the subsequent research of others there and at Crown Hills, Wigston' and elsewhere, the following organic remains have been obtained :—Algæ (L.M.), Worm-tracks, *Estheria minuta* (L.M.), *Avicula contorta* (L.M.), *Pecten valoniensis* (L.M.), *Isodonta ewaldi* (L.M.), *Modiola minima*, *Nucula variabilis* (L.M.), *Protocardium philippianum* (L.M.), *Pullastra arenicola*, *Schizodus depressus*, *S. elongatus*, *Ophiolepis damesii* (L.M.), *Acrodus minimus* (L.M.), *Ceratodus latissimus* (L.M.), *Colobodus maximus*, *Gyrolepis alberti* (L.M.), *Hybodus cloacinus* (L.M.), *H. minor* (L.M.), *Nemacanthus monilifer* (L.M.), *Pholidophorus higginsi* (L.M.), *Sargodon tomicus* (L.M.), *Saurichthys acuminatus* (L.M.), *Sphenonchus sp.*, Vertebra of *Ichthyosaurus*, *Labyrinthodon spp.*, Vertebræ of *Plesiosaurus*.

At East Leake, the Flora and Fauna met with, including some genera and species not in the above list marked,* was as follows :—*Pterophyllum brevipinna*,* *Actæonina valleti*,* *Avicula contorta* (L.M.), *Pecten valoniensis*, *Anatina præcursor*,* *Isodonta ewaldi* (L.M.), *Myophoria inflata*,* *Protocardium philippianum*, *Acrodus minimus*, *Gyrolepis quenstedti*,* *Hybodus minor*, *Labyrinthodon spp.*, *Rysosteus oweni*.*

* Mr. Harrison tells me that this perished soon after he obtained it.

† *Semionotus brodiei* occurs in sandstone at Colwick, Notts.

LOWER LIAS.

The finest exposure of the Lower Lias is at Barrow-on-Soar, where the lowest zones (those of *Psiloceras planorbe* and *Schlothemia angulata*) are in evidence. Other exposures are Crown Hills (*Ar. bucklandi* zone, now rather obscured) and Kilby Bridge, and along the cuttings on the G.N. Rly. and elsewhere the remaining zones may be examined. In Leicestershire eight zones have been differentiated, viz.:—The zones of *Am. planorbis*, *Am. angulatus*, *Am. bucklandi*, *Am. Semicostatus*, *Am. oxynotus*, *Am. armatus*, *Am. Jamesoni*, *Am. capricornis*.

The following is a summary of the Lower Liassic flora and fauna:—Plantæ.—*Pagiophyllum peregrinum* (*B., L.M.), Fossil Wood, (B. L.M.), Coniferous Wood (B. L.M.). Protozoa.—*Cornuspira infima*, *Cornuspira sp.*, *Dentalina sp.*, *Frondicularia sp.*, *Involutina sp.*, *Lingulina sp.*, *Marginula sp.*, *Miliola sp.*, *Nodosaria sp.*, *Nonionina sp.*, *Orbulina sp.*, *Planularia sp.*, *Pulvinulina sp.*, *Textularia sp.*, all except the first at Old Dalby (Wilson in Quilter Geol. Mag, 1886). Coelenterata.—*Lepidophyllia hebridensis*, *Montlivaltia guettardi* (L.M.), *M. haimei* (L.M.), *M. mucronata*, *M. papillata*. Annelida.—*Ditrupa capitata*, *D. etalensis* (L.M.), *D. quinquesulcata*, *Serpula sp.*, Worm-tracks (L.M.). Crustacea.—*Archæoniscus sp.* (B. L.M.), *Eryma nov. sp.* (L.M.), *E. barrovensis* (B. L.M.), *Glyphæa liassina* (B.), *Præatya scabrosa* (B.). Insecta.—Elytron of *Buprestis sp.*, Wing of *Libellula sp.*, *Palæotermes ellisii* (type specimen, B), (L.M.).

Gasteropoda.—*Actæonina sp.*, *Amberleya chapuisi*, *A. conspersa*, *A. dunkeri* (L.M.), *A. elegans* (L.M.), *Amberleya gaudryana* (L.M.), *A. gaudryana* var. (L.M.), *A. imbricata* (L.M.), *A. undulata* (L.M.), *Bourgetia sp.*, *Cerithium asperulum*, *C. camertonense* (L.M.), *C. ibex* (L.M.), *C. liassicum* (L.M.), *C. ligaturale*, *C. subfistulosum*, *Chemnitzia berthaudi*, *C. blainvillei* (L.M.), *C. carusensis*, *C. citharella* (L.M.), *C. Psemitecta*, *Cryptænia consobrina* (L.M.), *C. expansa* (L.M.), *C. rotellæformis*, *Cryptaulax cf undulata*, *Monodonta humilis* (L.M.), *Pleurotomaria anglica*, *P. precatoria*, *P. princeps*, *Trochus dalbiensis*

* B. = Barrow-on-Soar.

T. thetis (L.M.), *Turbo spp.* (L.M.), *Turritella trigemmata* (L.M.).

Scaphopoda.—*Dentalium giganteum.*

Lamellibranchiata.—*Avicula cygnipes* (L.M.), *A. inæquivalvis* (L.M.), *A. papyria, Gervillia spp., Gryphæa arcuata* (L.M.), *G. cymbium* (L.M.), *G. cymbium* var. *depressa, G. cymbium* var. *obliquata, Inoceramus dubius, Inoceramus substriatus* (L.M.), *I. ventricosus* (L.M.), *Lima duplicata, L. gigantea* (B. L.M.), *L. hermanni* (B.), *L. pectinoides* (L.M.), *L. punctata, L. succincta* (B. L.M.), *Limea acuticosta* (L.M.), *Ostrea goldfussi, O. liassica* (L.M.), *Pecten æquivalvis* (L.M.), *P. calvus,* (L.M.), *P. dentatus, P. lunularis* (L.M.), *P. textorius* (L.M.), *P. thiollieri* (L.M.), *Perna infraliassica, Pinna fissa, P. folium* (L.M.), *P. spathulata, Plicatula lævigata, P. spinosa* (L.M.), *Pseudomonotis decussatus* (L.M.), *Arca stricklandi, Arcomya elongata, A. vetusta, Astarte striato-sulcata* (L.M.), *Cardinia antiqua, C. attenuata, C. concinna, C. copides, C. gigantea, C. listeri, C. listeri* var *ovalis, C. listeri* var *hybrida, Cardita multicostata* (L.M.), *Corbicella sp., Cucullæa münsteri* (L.M.), *Goniomya hybrida, Gresslya intermedia, G. lunulata* (L.M.), *Hippopodium ponderosum* (L.M.), *Homomya sp., Modiola hillana* (L.M.), *M. hillanoides* (L.M.), *M. lævis, M. minima* (B. L.M.), *M. morissi, M. numismalis, M. scalprum* (L.M.), *Nucula variabilis* (L.M.), *Nuculana æquilatera* (L.M.), *N. complanata, N. galathea* (L.M.), *N. graphica* (L.M.), *N. minor, N. ovum* (L.M.), *Pholadomya ambigua* (L.M.), *P. decorata, P. glabra, P. ventricosa, Pleuromya costata, P. striatula, P. unioides, Pleurophorus sp., Protocardium philippianum* (L.M.), *P. truncatum* (L.M.), *Trapezium cucullata, Unicardium cardioides* (L.M.).

Cephalopoda.—*Acgoceras armatus* (L.M.), *A. birchi, A. brevispinus, A. capricornis* (L.M.), *A. curvicornis* (L.M.), *A. davesi* (L.M.), *A. gagateus* (L.M.), *A. henleyi, A. jamesoni, A jamesoni* var. *bronni, A. jamesoni* var *confusus, A. latæcosta, A. leckenbyi* (L.M.), *A. maugenesti, A. obsoletus* (L.M.), *A. polymorphus* (L.M.), *A. polymorphus* var. *lineatus, A. sagittarius, A. striatus* (L.M.), *A. taylori* (L.M.), *Amaltheus trivialis, Arietites bonnardi, A. brooki, A. bucklandi, conybeari* (L.M.), *A. macdonnelli* (L.M.), *A. obesulus, A. ophoides, A. raricostatus,*

A. sauzianus (L.M.), *A. scipionanus*, *A. semicostatus* (L.M.), *A. subnodosus* (L.M.), *Cycloceras valdani* (L.M.), *Harpoceras normanianus*, *Lytoceras cornucopia*, *L. fimbriatus*, *Oxynoticeras coynarti*, *O. guibalianus* (L.M.), *O. oxynotus* (L.M.), *Phylloceras loscombei* (L.M.), *Psiloceras aplanatum* (L.M.), *P. johnstoni* (L.M.), *P. planorbis* (L.M.), *P. tortilis* *Schlotheimia angulata* (B.), *S. catenata* (B. L.M.), *Belemnites acutus*, *B. clavatus*, *B. elegans*, *B. elongatus* *B. infundibulum*, *Nautilus striatus* (B.), *N. truncatus* (L.M).

Echinodermata.—*Cidaris edwardsi* (L.M.), *Hemipedina tomesi* (L.M.), *Extracrinus brittanicus*, *Pentacrinus basaltiformis*, *P. psilonoti*, *P. robustus*, *P. scalaris*.

Brachiopoda.—*Lingula metensis*, *Rhynchonella calcicosta*, *R. lineata*, *R. tetrahedra* (L.M.), *R. variabilis* (B. L.M.), *R. subvariabilis*, *Spiriferina verrucosa*, *S. walcotti*, *Terebratula furcillata* (L.M.), var. *lævigata* (L.M.), *T. punctata*, *Waldheimia numismalis* (L.M.), *W. perforata* (L.M.).

Pisces.—*Acrodus sp.*, *Belonorhynchus acutus*, *Browneichthys ornatus* (Type, B, L.M.), *Chondrosteus acipenseroides* (B. L.M.), *Dapedius dorsalis* (B. L.M.), *D. monilifer* (B. L.M.), *D. orbis* (B. L.M.) *Eugnathus hastingsiæ* (B.), *Gyrolepis alberti* (B. L.M.), *Heterolepidotus serrulatus* (B. L.M.), *Hybodus sp.* (L.M.), *Leptolepis concentricus*, *Mesodon liassicus*, *Oxygnathus egertoni* (B. L.M.), *Pholidophorus stricklandi* (B. L.M.), *Ptycholepis minor* (B. L.M.), *Sauvichthys acuminatus* (B. L.M.), *Undina barrovensis* (B).

Reptilia.—*Eretmosaurus rugosus*, *Ichthyosaurus communis* (B. L.M.), *I. conybeari* (? B.), *I. integer* (B.) *I. intermedius* (B. L.M.) *I latifrons* (B. L.M.), *I. platyodon* (? B.), *I. tenuirostris* (B. L.M.), *Plesiosaurus dewalquei* (B.), *P. hawkinsi*, *P. macrocephalus* (B. L.M.), *Thaumatosaurus megacephalus* (B.).

MIDDLE LIAS.

Undoubtedly, the finest exposure of the Marlstone Rock-bed is at Tilton, and the East Norton embankment, made up of debris from the cutting on the G.N.Rly., where this section is to be seen, furnishes the readiest means of procuring fossils from this horizon (*Am. spinatus* zone). At

Billesdon Coplow similar fossils occur, including the rare *Eodiadema granulata*, and a number of Gasteropoda and Cephalopoda, characterizing the "Transition-bed."

The *margaritatus* zone is seen in many places, cropping out at the base of the escarpments formed by the rock-bed. A Gasteropod bed occurs low down in this part of the Middle Lias, but it is also especially rich, for the most part—at least in the number of individuals—in Brachiopoda and Lamellibranchia.

The following is a list of the fossils obtained by Wilson at Tilton, reproduced from the Geological Magazine.*

Reptilia.—*Ichthyosaurus sp.* vertebræ.

Cephalopoda.—*Amaltheus margaritatus* (L.M.), *A. spinatus* (L.M.), *Harpoceras acutum* (L.M.), *H. ovatum*, *H. serpentinum*, *Stephanoceras annulatum* (L.M.), *S. commune*, *S. semicelatum*, *Belemnites apicicurvatus* (L.M.), *B. breviformis*, *B. clavellatus*, *B. paxillosus* (L.M.), *Nautilus truncatus*.

Gasteropoda.—*Actæonina fragilis*, *A. ferrea*, *A. ilminsterensis* (L.M.), *A. sinemuriensis*, *Amberleya* (*Trochus*) *gaudryana* (L.M.), *A.* (*Trochus*) *gaudryana* var. (L.M.), *Cerithium confusum* (L.M.), *C. costulatum*, *C. ferreum*, *C. ilminsterensis*, *C. liassicum*, *C. reticulatum* (L.M.), *Chemnitzia* (?) *periniana*, *C.* (?) (*Turritella*) *undulata*, *Cryptœnia expansa* (L.M.), *C. rotellæformis*, *C. solarioides*, *Cylindrites æqualis*, *Monodonta bullata*, *Pseudomelania* (*Chemnitzia*) *brannoviensis* (L.M.), *P.* (*Phasianella*) *turbinata* (L.M.), *Pseudomelania sp.*, *Pleurotomaria* (*Turbo*) *canalis*, *P.* (*Trochus*) *helicinoides*, *P. rustica*, *P. similis* (= *anglica*), *Trochus ariel* (L.M.), *T. fidia*, *T. lineatus*, *T. pethertonensis*, *P. rotulus*, *Turbo cyclostoma*, *Turbo rugifera*, *T. coronatus* (= *Pl. costulatum*, *Turbo latilabrus* (L.M.).

Lamellibranchiata.—*Anomia numismalis*, *Astarte striato-sulcata*, *Cardinia concinna*, *C.* (*Isocardia*) *slatteri*, *Ceromya bombax*, *Goniomya heteropleura*, *Gresslya intermedia*, *G. lunulata* (L.M.), *Hinnites abjectus*, *H. velatus*, *Inoceramus sp.*, *Lima eucharis*, *L. hermanni*, *L. pectinoides* (L.M.), *Limea acuticosta*,

* "Geol. Mag.," 1888, p. 341.

L. juliana, *Macrodon buckmanni* (L.M.), *Modiola numismalis*, *M. ornata*, *M. scalprum* (L.M.), *Monotis inæquivalvis*, *Ostrea* (*Gryphæa*) *cymbium*, var. *depressa*, *O. submargaritacea*. *Pecten acutiradiatus*, *P. æquivalvis* (L.M.), *P. calvus*, *P. dentatus*, *P. lunularis* (L.M.), *P. priscus*, *P. textorius* (L.M.). *Pinna tiltonensis* (L.M.), *Plicatula spinosa* (L.M.), *Protocardium truncatum*, *Tellina gracilis*, *Unicardium subglobosum*.

Brachiopoda.—*Discina reflexa*, *Rhynchonella acuta* var. *bidens*, *R. amalthei*, *A. fodinalis*, *A. tetrahedra* (L.M.), *R. tetrahedra* var. *northamptonensis* (L.M.), *Spiriferina rostrata*, *Terebratula punctata* (L.M.), *T. punctata* var. *edwardsii* (L.M.), *T. punctata* var. *haresfieldensis* (L.M.), *T. sub-punctata* var. *radstockensis* (L.M.), *T. walfordi*, *Waldheimia indentata*, *W. numismalis*, *W. resupinata*, *W. sub-numismalis*.

Bryozoa.—*Diastopora oolitica*, *D. stomatoporoides*?

Annelida.—*Ditrupa capitata*, *D. etalensis*, *D. quinquesulcata*, *Serpula tetragona*, *S. tricristata*.

Echinodermata.—*Eodiadema granulata*, *Pentacrinus lævis*.

Actinozoa.—*Thecocyathus sp.*

Incertæ sedis.—*Onychites sp.*

UPPER LIAS.

At Tilton, and in the same neighbourhood, the Upper Lias caps the Middle Lias, and some good sections are to be seen, which afford the following Fauna:—Coniferous wood, *Serpula tricristata*, *Amberleya capitanea*, *Nortonia patroclus*, *Trochus northamptonensis* (L.M.), *Turbo theodori*, *Inoceramus dubius*, *Pecten sp.*, *Posidonomya bronni*, *Posidonomya sp.*, *Pteroperna sp.*, *Arca ferruginea*, *Arca sp.*, *Arcomya elongata*, *Astarte striato-sulcata*, *Gresslya donaciformis*, *Lucina sp.*, *Nucula claviformis*, *N. hammeri*, *Nucula sp.*, *Nuculana ovum* (L.M.), *communis* (L.M.), *C. crassus* (L.M.), *C. desplacei*, *C. fibulatus* (L.M.), *C. holandrei* (L.M.), *C. raquinianus* (L.M.), *Harpoceras bifrons* (L.M.), *H. complanatus*, *H. concavus*, *H. elegans*, *H. exaratus* (L.M.), *H. falcifer* (L.M.), *H. lythensis*, *H. radians*, *H. subplanatus* (L.M.), *Phylloceras heterophyllus*, *Belemnites irregularis*, *B. levedensis*, *B. subtenuis*, *B. voltzi*, *B. vulgaris*, *Nautilus lineatus*, *N. semistriatus*, *N. striatus*,

N. toarcensis, *Discina reflexa*, *Terebratula sp.*, *Ichthyosaurus zetlandicus*, *Ichthyosaurus sp.* (vertebræ).

INFERIOR OOLITE.

The Northampton Sands are only represented by some small outliers, the most important being Neville Holt, where it is overlain by beds of the Lincolnshire Oolite.

Terebratula submaxillata is found in both of the above at Neville Holt, and also at Whadborough Hill, and at the higher horizon at Neville Holt there also occur *Terebratula perovalis* and *Pteroperna ? costatula*, but the sections are now much obscured, and fossils are not easily obtained.

In Rutland, however, at certain horizons, a rich fauna is to be met with.

PLEISTOCENE AND RECENT.

In river gravels and alluvium, where gravel-pits or other works have opened up these deposits at Belgrave, Humberstone, Thurmaston, Abbey Meadow, Bede House Meadow, Aylestone, Loughborough, Barrow-on-Soar, and at a few higher levels, *e.g.*, Ansty Gorse, a considerable number of vertebrate remains have been found. These are :—*Bison bonasus* var. *priscus*, *Bos taurus* var. *primigenius*, *Cervus elaphus*, *Elephas antiquus*, *Elephas primigenius*, *Rangifer tarandus*, *Rhinoceros leptorhinus*.

The following are of more recent date, and have been found mainly at the same localities, most of their descendants surviving to the present time :—*Bos taurus* var. *longifrons*, *Capra or Ovis*, *Capreolus caprea*, *Cervus dama*, *Cervus elaphus*, *Equus caballus*, *Sus scrofa*.

THE CRYPTOGAMIC FLORA OF LEICESTERSHIRE.

By A. R. Horwood, *Leicester Corporation Museum.*

Phylum—*MYXOTHALLOPYTA.*

Little attention has been paid to the distribution of the Myxomycetes, or "Slime-Fungi," of Leicestershire. Of the 120 odd British species, a dozen common species were found in Leicestershire, at Twycross, Gopsall, and elsewhere, by the Rev. A. Bloxam, M.A., and are recorded in the published Flora. Many others undoubtedly occur, but there have been no recent workers at the group.

Phylum—*THALLOPHYTA.*

Class—SCHIZOPHYTA.

Order—CYANOPHYCEÆ.

Blue-green Algæ.

Some of the more typical and commoner forms of the family Chroococcaceæ occur at Cropstone and in the River Soar at Croft and elsewhere.

In the Reservoirs of Saddington, Thornton, Swithland, Blackbrook, and the River Soar and the smaller tributaries and streams, as well as in the damp terrestrial situations which are to be found everywhere throughout the county, many more Blue-green Algæ should occur, but apart from the work done by Mr. F. Bates, who paid great attention to the

Algæ of the county in general, and later that done by Mr. F. T. Mott, this group and the Terrestrial and Fresh-water Algæ have of recent years been greatly neglected, though the tracts of water, etc., above-named afford excellent scope for future enterprise in that direction. There are some additions to be made to the list in the Flora, but these cannot be enumerated here. To a certain extent a knowledge of the distribution of the Schizophytes and some allied primitive "Algæ" is rendered difficult by the erratic nature of their occurrence, the same forms not being usually found in successive years in the same station, so that they cannot be regarded as permanent, even though to some extent indigenous.

Of the *Nostocaceæ* there are more local representatives than of the first-mentioned family. Indeed, they are everywhere abundant, though not usually fertile, and so indeterminable, being in that state hardly distinguishable from some species of *Collema* (a Lichen).

About Narborough and Croft a large number have been detected in rocky pools and on mud. These differ in genera and species from those found in the Forest district (*vide* Flora).

Two members of this family were first distinguished and named by Mr. F. Bates from local material in the Flora of Leicestershire, 1886, viz. :—*Anabæna nitellicola*, Bates, and *Sphærozyga cookeana*, Bates—the former found on stems of *Nitella* in a little pond on Charnwood Heath, now nearly dried up, the latter in a moorland pool at Bradgate Park.

Class—*GAMOPHYCEÆ.*

Sub-Class—*CHLOROPHYCEÆ,*

Green Algæ.

The Green Algæ are by far the most abundant locally, in genera and species, of all the land and fresh-water Algæ. This is found to be so whether they are terrestrial, growing on damp soil or in greenhouses, etc., and forming extensive patches of a gelatinous nature and of various colours, in water-tanks, etc.; or covering the trunks of trees or rails, palings, walls, etc., like a fine dust; or parasitic on mosses or other plants; or aquatic, and having their habitat in rock pools, ponds, reservoirs, in more or less still or stagnant water (as many of them occur); or luxuriating in running streams of swift water, sometimes attached to rock, sometimes floating or growing freely from the bottom of stream or river.

If, for instance, we take such a district (No. ix. of the county botanical districts) as that lying between Enderby, Narborough, Cosby and Croft, and the surrounding country, we find that there are to be met with in such habitats a very considerable number of Green Algæ, which are specifically different from those of the same sub-class to be met with on the Charnwood Forest range.

Some of our most interesting Algæ are met with in the Charnwood Forest district. If we visit, for instance, any of the following localities, Spring Hill, Mount St. Bernard's Abbey, Beacon Hill, High Sharpley, Bradgate Park, Cropstone Reservoir, Charnwood Heath

—particularly the latter—where some peculiar species occur, we shall find the species, and even the genera, most predominant are markedly distinct from those found in the lower ground of the Soar valley.

Charales.

The "Stone-worts" of Leicestershire belonging to the family Characeæ consist of *Chara fragilis* and var. *capillacea*, *C. hispida*, *C. vulgaris* and var. *longibracteata*, *Nitella opaca*. *C. fragilis* occurs in the Canal near Moira and in a pond between Kilby and Fleckney, and the var. *capillacea* in a pond near Elmesthorpe. *C. hispida* has been met with only at Market Bosworth and Hemington Hole.

Florideæ. "*Red Sea-Weeds.*"

Batrachospermum moniliforme and *B. atrum* have been met with at Narborough by Bates, and the var. *setigerum* of the first species at Grace Dieu.

Class—*FUNGI*.

Only some 450 out of the 5000 odd British Fungi have been recorded; but there are some additions to make to the published list.

A good number of *Uredineæ* and *Ustilagineæ* and allied microscopic forms have been collected recently by the writer and others, and of these several are new to Leicestershire.

From Leicestershire material ten fungi were first described by Bloxam. These are *Agaricus babingtonii* and *Hygrophorus colemannianus* (named after local botanists), *Peziza berkeleii*, *Peziza auricolor*, *Peziza browniana* (named after Ed. Brown, of Burton-

on-Trent), *Peziza atro-vinosa*, *Peziza constipata*.

As essentially a grass country, the "Cream of the Shires" affords for the mycological student an excellent field for his investigations. The wide stretches of meadow and pasture land in East Leicestershire, as well as those in the S., N. and S.W.—to much the same extent—yearly produce a rich harvest of the larger edible, as well as poisonous, agarics. Throughout that area, and, in fact, as an almost universal rule, the *Agaricini* are well represented, particularly the strictly pratal species. But there is yet another characteristic feature of the county, viz., the tall hawthorn hedges, which, when "layered," leave much dead wood in the ditches or on the banks. These, too, yield a large number of the smaller corticolar fungi, which were at one time nearly all included in the genus *Sphæria*. The abundant undergrowth which springs up from beneath the superfluous branches of the hawthorn, etc., which are cut down and used to fill up the ditches, is also a very profitable hunting-ground for similar plants.

In addition to the well-wooded area of Charnwood Forest, there are throughout the county a number of extensive woods and scattered plantations in which the Fungi that flourish best in shaded and humid habitats are to be found. To take a few at random—Owston, Tugby, Burbage, Ashby Pastures, Barkby Holt, and fringing the Forest, Belton, Martinshaw, Swithland, and Buddon Woods. All of these nourish yearly a considerable number of characteristic

species. In the published Flora, the localities given for the species are for the most part situated in District viii., being principally the result of the work of Mr. Bloxam, who collected mainly at Twycross, Gopsall, Orton Wood, etc. That so many species occur in so confined an area suggests the probability that they are to be met with in most of the other districts.

Quite half of the published species are Agarics, and as this is an undue proportion, when compared with the whole British Fungus Flora, it is certain that many more species of the other groups remain to be added to the list.

A general idea of the character of the Fungus Flora may be gathered by an excursion to Swithland Wood, perhaps one of the most favourable spots for studying the Fungi that favour woods and moist situations generally. This district (v.) was carefully investigated before the publication of the Flora by the Botanical Section of the Leicester Literary and Philosophical Society.

The Flora of this station, in the main, gives an index to that of most of the Forest region, many of the species also being rarely found in the surrounding clayey grass districts to the S. and E.

Class—*LICHENS*.

Out of a total of some 2000 British species of Lichens, some 300 have been met with in Leicestershire. As many British species are confined to limited areas or single habitats in the mountainous districts of Scotland and

Wales, and many others flourish only in maritime districts, this proportion, especially when compared with the Floras of the surrounding counties of Warwickshire, Derbyshire, Staffordshire, Notts, Lincolnshire, and Northants, is by no means a poor one.

Between 1886 and 1903 101 species and varieties were added to the Lichen Flora of Leicestershire, being recorded in the Journal of Botany* by the writer. Since then some twenty or thirty species have been added to the list.

For saxicolar species, the Forest district and the Limestone area to the N.W., as well as the Marlstone in the centre, and Oolite in the extreme E. of the county, and some isolated tracts of Keuper Sandstone near and to the N.W. of Leicester, afford the best localities.

But in addition to these districts, where the rocks are *in situ*, there are scattered over the whole of Leicestershire an enormous number of erratic blocks, brought by ice-agency, mainly from the Charnwood range, or sometimes placed where they are by man, and on these not only some of the uncommon Lichens, but also some more local mosses are to be found. Embedded, as they usually are, in boulder-clay in some of the less productive parts of the county, they lend a contrast to the local species at each place in which they are to be found.

Many houses, walls, etc., also are built both of the Forest rocks in S. and W. Leicestershire and in N. and E. Leicestershire of the Marlstone,

* Vol. 42., pp. 47-49, 1904.

and in this case, again, species are to be found which, unless artificial means had caused them to be so distributed, would be absent from such stations or districts. At the same time many of these plants are not transported artificially, but occur because the spores have naturally found a resting place there and flourished, when elsewhere or without such rock-masses they would not do so.

Perhaps one of the best localities at which Lichens can be obtained (or where formerly they flourished best) is Bardon Hill. It is a matter for regret that many plants once found there are now no longer to be seen, but the following list is an interesting one, and gives a good idea of the general nature of the Lichens of the Forest area, many of which are not found elsewhere:—*Sphærophorus coralloides*, *Sphærophorus fragilis*, *Bæomyces rufus* (probably confined to the Forest area), *Cladonia gracilis*, *Cladonia furcata* var. *spinosa*, *Cladonia squamosa*, *Cladonia subsquamosa*, *Cladonia digitata*, *Cladonia floerkeana* var. *trachypoda*, *Cladina rangiferina*, *Cladina uncialis*, *Usnea dasypoga* var. *plicata*, *Alectoria jubata*, *Cetraria aculeata*, *Cetraria aculeata* var. *hispida*, *Platysma sæpincola*, *Platysma ulophyllum*, *Platysma diffusum*, *Platysma glaucum*, *Parmelia conspersa*, *Parmeliopsis ambigua*, *Stictina sylvatica*, *Lobarina scrobiculata*, *Lobaria pulmonaria*, *Peltigera horizontalis*, *Leproloma lanuginosum*, *Lecanora glaucoma*, *Lecanora sulphurea*, *Lecanora expallens*, *Lecanora badia*, *Lecanora parella*, *Lecanora squamulosa*, *Thelotrema lepadinum*, *Lecidea verruculosa*, *Lecidea*

lightfootii, *Lecidea geographica*, *Lecidea geographica* var. *atro-virens*, *Arthonia punctiformis*, *Graphis elegans*.

To the Forest region and the Limestone tract to the N.W., and some localities in the Bosworth district, many plants seem to be confined. Amongst these may be mentioned all the species of *Collema* except *C. pulposum*, *C. crispum*, and *C. cheileum*. The genera *Collemodium*, *Leptogium*, *Sphinctrina*, *Sphærophorus* (probably extinct), *Bæomyces*, *Stereocaulon* (now extinct), all the species of *Cladonia*, except, perhaps, *C. pyxidata*, *gracilis*, *furcata*, *squamosa*, *macilenta*. The genera *Alectoria* (probably extinct), *Platysma*, the species *Parmelia lævigata*, *conspersa*, *mougeotii*, *incurva* and *prolixa*, and the genera *Stictina*, *Lobarina*, *Lobaria*, *Ricasolia* (extinct), *Umbilicaria*, *Gyrophora*, *Coccocarpia* (extinct), *Leproloma* (extinct). Of the genus *Lecanora* the following species : *L. ferruginea*, *roboris*, *glaucoma*, *expallens*, *polytropa*, *badia*, *lacustris*, *squamulosa*, *fuscata*, also *Pertusaria velata*, *Thelotrema*, *Urceolaria scruposa*, *Lecidea vernalis*, *L. tenebrosa*, *verruculosa*, *lightfootii*, *abietina*, *foveolaris*, *pachycarpa*, *geographica*, *Arthonia punctiformis*, the genus *Endocarpon*, several species of *Verrucaria*, *e.g.*, *V. immersa*, *cinerea*, *chlorotica*, *V. umbrina*, *clopima*.

In the surrounding low-lying districts, chiefly consisting of Keuper Marl and Liassic Limestone and Clay, covered by Boulder-clay, there is an absence of these plants, and, excepting some saxicolar forms, there is nothing to characterize the Flora by the representation

of any particular species confined or peculiar to any limited area or station.

In almost any of the districts outside the Forest area some eighty or ninety species of plants may be found, and, where good sandstone walls or granite boulders occur, many other more local species of the genus *Lecanora*, *Lecidea*, and *Verrucaria* are to be met with. Fine fruiting specimens of some species of the genus *Physcia*, *Lecanora* and *Lecidea* also can be obtained from the clean-barked ash, which is particularly common in E. Leicestershire.

Phylum—*ARCHEGONIATÆ*.

Class—*BRYOPHYTA*.

Order—*HEPATICÆ*.

Of the 250 species of Hepaticæ, only some 50 odd occur in Leicestershire.

Characteristic of the Forest region in general, the following plants occur at Bardon Hill :—*Riccia crystallina* (this is especially abundant at Cropstone Reservoir), *Aplozia crenulata*, *Lophozia ventricosa*, *Lophozia bicrenata*, *Lophozia excisa*, *Lophozia barbata*, *Lophozia flœrkii*, *Lophozia gracilis*, *Plagiochila asplenioides*, *Cephalozia bicuspidata*, *Lepidozia reptans*, *Diplophyllum albicans*, *Scapania nemorosa*, *Scapania undulata*, *Madotheca platyphylla*, *Lejeunea serpyllifolia*, *Frullania tamarisci*.

Some sixteen Hepatics may be said to be of almost universal distribution in the lowland districts :— *Riccia glauca*, *Conocephalus conicus*, *Lunularia cruciata*, *Marchantia*

polymorpha, Aneura multifida, Metzgeria furcata, Pellia endiviæfolia, Pellia epiphylla, Fossombronia pusilla, Plagiochila asplenioides, Lophocolea bidentata, Lophocolea heterophylla, Chiloscyphus polyanthus, Radula complanata, Madotheca platyphylla, Frullania dilatata.

Order—*MUSCI* (Mosses).

The Moss Flora of Leicestershire in 1886 consisted of some 172 species and varieties. An account *in extenso* of the recent work done was supplied by the writer, of which an abridged paper was published by Mr. A. B. Jackson in 1905.* Some MS. notes of Coleman's, omitted in the Flora, were also utilized in the recent list. This contained some fifty species and varieties that had not been previously discovered in Leicestershire.

The Moss Flora of Leicestershire contains, as in the case of the Lichens and Hepatics, many plants that appear to be confined to the Charnwood Forest region, or to the neighbourhood of Ashby, and the Carboniferous Limestone district in the N.W. of the county. Little is known of the Mosses to be found on the isolated tracts of Oolite in the east of the county.

To the former district the following genera and species appear to be restricted :—The genera *Sphagnum, Tetraphis,* most of the species of *Polytrichum, Ditrichum, Campylopus* (*C. pyriformis* is, however, found in some outlying heathy districts, *e.g.*, Burbage Common, and quite recently has occurred in a small spinney at Aylestone in low-lying

* Journal of Botany, Vol. 43, pp. 225—231.

boggy ground), *Dicranum* (*D. bonjeani* occurs also at Burbage, and recently has been found on old heath land at Ingarsby), except *D. scoparium*, which is ubiquitous, *Leucobryum*, *Rhacomitrium*, *Ptychomitrium*, *Hedwigia*, *Leptodontium*, *Trichostomum*, *Cinclidotus*, *Schistostega*, *Aulacomnium palustre*, *Bartramia*, *Philonotis*, *Breutelia*, *Neckera crispa* and *N. pumila*, *Pterygophyllum*, *Antitrichia*, *Brachythecium plumosum*, *Plagiothecium borrerianum*, *P. undulatum*, *Hypnum schreberi*.

Except in the Forest area the *Sphagnaceæ* are unknown, and even there they are now restricted to one or two localities, *e.g.*, Buddon Wood, Beacon Hill, and some other adjacent stations. In E. Leicestershire the only *Polytricha* to be found are *P. formosum* and *P. commune*, and Croft is the most southern station for *P. juniperinum* and *P. formosum*. Of *Dicranum scoparium* several curious forms occur in both the Forest area and in the surrounding districts, especially on old heaths in the S. and E., but they are not sufficiently well defined to come under any of the named varieties.

The Pottias appear to be more especially abundant on the Keuper and Liassic formations, *P. lanceolata* and *P. bryoides* on the former, the other species on the latter.

Encalypta vulgaris, only known previously from Grace Dieu, Breedon, and Twycross, has since been found on marlstone at Lowesby and walls at King's Norton, Buddon, and Groby.

E. streptocarpa has been found on stone

walls at Hinckley by the Rev. H. P. Reader, who has also discovered a very large number of other interesting species, many new to the list, in the same district.

The discovery of *Orthotrichum tenellum* by the same bryologist at Scraptoft, in 1905, is also of very great interest. Near the same place the writer found *O. sprucei*, only previously known from Temple Mill (Dist. viii.), where Bloxam discovered it.

One of the most interesting discoveries recently is that of *Thuidium recognitum*, which was found in 1905 by the Rev. H. P. Reader at Aylestone. Since then it has occurred at several places in Districts i. and ii. The finding of *Pylaisia* at King's Norton by the writer is also important, as it is rare in central England, and the same remark applies to *Heterocladium heteropterum*, which turned up at Grace Dieu whilst this short summary was in the press.

Class—*PTERIDOPHYTA*.

Leicestershire is not noted for any rare Ferns, and, except in the Forest region, they are nowhere abundant. There *Ceterach officinarum* is still said to linger at Buddon Wood, and a single plant was found on a wall in Wood Lane, Quorn, by Mr. T. Carter. Quite the most interesting "find" for some years was the discovery of the same plant on a stone wall at Narborough—some distance from the Forest region—in 1901, by Mr. W. Bell, who has also found another Fern previously held to be very local in Leicestershire, viz., *Botrychium lunaria*, at a number of

stations. It was found at Scraptoft, also by the Rev. H. P. Reader in 1905, and in the same year by the writer at Baggrave (Dist. ii.).

Of the Lycopods, only one species still survives, viz., *Lycopodium clavatum*, which was recently found by Mrs. Foord-Kelcey at Buddon Wood and Beacon Hill, in the Forest district. Apparently regarded as extinct years ago, it was re-discovered in 1884 at Charnwood Heath, but in 1905 it could not be found at that place.

BOTANY.

PHANEROGAMS.

By W. Bell, *Secretary of Section "D," Botany, and Curator of the Herbarium of Leicestershire Plants of the Leicester Literary and Philosophical Society.*

A casual glance at a map of the county would give an idea that, the fact of its being situated on the central plain, with no chain of mountains, no sea board, and little natural water, the range of vegetation would be very limited. However, this is not the case. Although the whole of the county has not been systematically worked, the number of species recorded for Leicestershire compares favourably with those recorded for the other vice counties of the United Kingdom.

For the early history of the county Flora we have to thank Doctor Richard Pulteney, 1730-1801, who published a list of plants found near Loughborough; the Rev. G. Crabbe, 1754-1832, who compiled a valuable list of plants in the Belvoir district; later, the Revs. Andrew Bloxam and W. H. Coleman, who prepared a Flora of the County; then Miss Mary Kirby, who published a Flora of Leicestershire; and, nearer to our own time, the late Rev. T. A. Preston, M.A., who spent so much time in perfecting the County Herbarium; and finally the members of the Botanical Section of the Leicester Literary and Philosophical Society, who published a Flora of Leicestershire in 1885.

Botanically, the county may be divided into three quite distinct parts:—(1) That of the Soar Valley, which consists of nearly three-fourths of the county, and in which the usual floral inhabitants of the Midland agricultural districts may be found. (2) That of the Charnwood Forest, which embraces about one-fourth of the area of the shire, and where a very diverse Flora still exists. (3) A small stretch of land on the extreme eastern border, where the Oolite comes in, and a number of plants are found which do not appear at all or are found very sparingly in other parts of the county.

The most interesting of the three divisions is certainly that of the Forest. Unfortunately, many of the plants reported by the older botanists, as, for example, the *Droseras*, reported by Pulteney, have ceased to exist there, as the enclosure of the Forest, the drainage of most of the bogs, and the gradual advance of agriculture have all tended to change the character of the Flora. For instance, the cutting down of the timber, mostly oak, with a considerable admixture of pine, exposed the shade-loving plants to the bright sunshine, and has tended to exterminate them. *Fragaria vesca* was thus nearly obliterated. However, there are a few spots still existing where a very good idea of the original system of plant life may be found.

Groby Pool and the immediate vicinity have been described as the index to the old Forest Flora, and truly the number and character of plants here found tend to confirm this

statement. Except for the quarrying on the Sheethedges side, little alteration has occurred in the locality for centuries, and with two or three exceptions the whole of the 280 Phanerogams recorded from here by the older botanists are still *in situ*.

The easy access to Groby—4½ miles from Leicester, and 3½ from the tram terminus—makes it all the more wonderful that so many plants retain their footing. It is, perhaps, a good thing that three sides are strictly preserved, and thus for the present there is a probability of most of the rarities being left for future generations. The quarrying may have disturbed a few subjects—*Dianthus deltoides*, for instance—but *Senecio viscosus*, which was unknown a few years ago, is now found in great plenty. This most certainly was introduced by traffic on the railway to the quarry.

The following are a few of the most noticeable plants found in, on the border, and in the immediate vicinity of the Pool:—*Thalictrum flavum*, *Anemone nemorosa*, *Ranunculus Lingua*, *R. flammula*, *R. sardous*, *Aquilegia vulgaris*, *Berberis vulgaris*, *Castalia speciosa*, *Cardamine flexuosa*, *C. amara*, *Sisymbrium Thalianum*, *Cerastium semidecandrum*, *Stellaria palustris*, *Sagina nodosa*, *Buda rubra*, *Erodium cicutarium*, *Rhamnus Frangula*, *Genista tinctoria*, *Trifolium striatum*, *T. filiforme*, *Ornithopus perpusillus*, *Prunus Avium*, *Rubus leucostachys*, *R. Salteri*, *R. Selmeri*, *etc.* *Potentilla argentea*, *Alchemilla filicaulis*, *Rosa spinosissima*, *Chrysosplenium alternifolium*, *C. oppositifolium*, *Parnassia palustris*, *Hippuris*

vulgaris, Lythrum salicaria, Hydrocotyle vulgaris, Œnanthe peucedanifolia, Œ. Phellandrium, Senecio viscosus, S. sylvaticus, Picris hieracioides, Campanula latifolia, Anagallis tenella, Menyanthes trifoliata, Myosotis versicolor, Littorella juncea, Veronica scutellata, Utricularia vulgaris, Mentha Pulegium, Nepeta cataria, Polygonum Bistorta, Rumex maritimus, R. Hydrolapathum, Daphne Laureola, Ceratophyllum demersum, Listera ovata, Spiranthes autumnalis, Epipactis latifolia, E. palustris, Orchis latifolia, O. incarnata, Habenaria conopsea, Allium vineale, Paris quadrifolia, Juncus compressus, Acorus Calamus, Alisma plantago, A. ranunculoides, Triglochin palustre, Eriophorum vaginatum, E. polystachion, E. latifolium, Carex disticha C. teretiuscula, C. echinata, C. acuta, C. pendula, C. fulva, C. ampullacea, C. pseudocyperus, C. paludosa, C. riparia, Aira præcox, Catabrosa aquatica, Festuca elatior, F. rigida, Pteris aquilina, Asplenium adiantum-nigrum, Lastræa Filix-mas, L. spinulosa, L. dilatata, Equisetum maximum.

Older botanists mention *Damasonium stellatum, Asplenium adiantum-nigrum, Carex acuta*, var *prolixa*, and others, which have been sought for in vain during recent years.

Many of the subjects mentioned under Groby can be found in different parts of the Forest; and on the rugged parts above Whitwick there still remain one or two examples which point to a one-time Alpine Flora. There are still a few tufts of *Empetrum nigrum* which have survived the vicissitudes of the Forest's fate, and at Swithland the *Cotyledon*

umbilicus lives on as a relic of bygone ages.

Bradgate Park and the woods adjoining are excellent hunting grounds for the botanist; Roecliffe, Lingdale, and Swithland produce a moderate supply of Hieracium; and for Brambles no better ground can be found than the Ulverscroft Valley, *i.e.*, Newtown Linford, to Bawden Castle, and the lanes and woods bordering thereto. The following 37 forms have all been recorded therefrom :—*Rubus idæus*, *R. suberectus*, *R. plicatus*, *R. carpinifolius*, *R. lindleianus*, *R. rhamnifolius*, *R. pulcherrimus*, *R. lindebergii*, *R. selmeri*, *R. calvatus*, *R. rusticanus*, *R. mollissimus*, *R. salteri*, *R. pyramidalis*, *R. leucostachys*, *R. mucronatus*, *R. anglosaxonicus*, *R. setulosus*, *R. leyanus*, *R. radula*, *R. echinatus*, *R. oigoclados*, *R. bloxamianus*, *R. scaber*, *R. fuscus*, *R. nutans*, *R. roseceus*, *R. hystrix*, *R. infecundus*, *R. dasyphyllus*, *R. britannicus*, *R. dumetorum*, *R. ferox*, *R. corylifolius*, *R. cyclophyllus*, *R. cæsius*, *R. Babingtonii*, var. *phyllothyrsus*.

It has been stated that in no part of the kingdom can so many forms of *Rubi* be found in so small an area.

At Grace Dieu, Asplands, Breedon Cloud and Hill there are escarpments of Limestone, and at each of these places may be found a number of plants peculiar to the Limestone formation.

At Grace Dieu and Breedon Hill the *Chieranthus Cheiri* is quite at home, and at the latter the *Vinca major* is well established. *Valerianella carinata* is well represented. At Cloud Wood *Calamagrostis epigejos* and *C.*

lanceolata are found, with the *Orchis apifera*.

The Oolite occupies a parcel of land on the eastern side of the county, enclosed in a line taken from Waltham-on-the-Wolds, nearly N.E., to the "Three Queens," on the Saltway, which forms the division of this county with Lincolnshire; and from Waltham in a zigzag line S.E. to the Woodhead Wood, on the border of Rutland; thence, due east, to the Saltway. The Saltway is one of the old Roman roads which, at one time, formed part of that intricate network which made the communication between the various parts of the kingdom so excellent during the Roman occupation. It has now lost its purpose; and from Buckminster to "Three Queens" it is only a grass-covered lane, quite useless for vehicular traffic. No doubt the deep dip in the roadway near Buckminster, and the quarrying in the middle of the road, together with the fact that it does not fall in the line of communication with local villages, contribute to the disuse of this portion of the Saltway. It would naturally be expected that this would be a prolific spot for a botanist, and it is not disappointing. Some of the rarest plants of the county are here found:—*Helianthemum chamæcistus*, *Viola permixta*, *Hippocrepis comosa*, *Astragalus danicus*, *Calamintha arvensis*, *Cerastium arvense*, *Gentiana amarella*, *Lamium amplexicale*, *Galeopsis ladanum*, *Myrrhis odorata*, *Asperula cynanchica*, etc.

In this area of the Oolite, we have a Flora which in some respects approaches that we find on the chalk. Unfortunately, there is

little water found in this district, and except for the brook which rises at Bescaby Oaks, and flows to the River Eye, there would be a great dearth of aquatic plants. Bescaby Oaks is a large wood of well grown oak, and indicates that the formation would carry good timber. Adjoining the "Oaks" is a new plantation of spruce fir, which appears to thrive equally well with the Quercus. There are fine specimens of ash and elm at Buckminster, and many good examples of spruce in the long spinneys.

The following plants have been recorded :— *Ranunculus sceleratus*, *R. auricomus*, *R. acris*, *R. repens*, etc. *Caltha patustris*, *Aquilegia vulgaris*, *Berberis vulgaris*, *Chelidonium majus*, and the form *laciniatum*, near Buckminster, *Fumaria officinalis*, *Erophila vulgaris*, *E. præcox*, *Raphanus raphanistrum*, *Reseda lutea*, *Helianthemum Chamæcistus*, *Viola odorata*, *V. hirta*, etc. *Silene cucubalus*, *Cerastium glomeratum*, *Cerastium arvense*, *Genista tinctoria*, *Anthyllis vulneraria*, *Astragalus danicus*, *Spiræa ulmaria*, *S. filipendula*, *Agrimonia eupatoria*, *Rosa tomentosa*, *Sanicula europæa*, *Anthriscus vulgaris*, *Viburnum opulus*, *Adoxa moschatellina*, *Galium tricorne*, *Asperula cynanchica*, *Valerianella dentata*, *Scabiosa columbaria*, *S. arvensis*, *Carduus nutans*, *Picris hieracioides*, *Campanula latifolia*, *C. glomerata*, *Specularia hybrida*, *Calluna erica*, *Blackstonia perfoliata*, *Gentiana campestris*, *Linaria vulgaris*, *L. viscida*, *Calamintha arvensis*, *Daphne Laureola*, *Listera ovata*, *Orchis maculata*, *O. pyramidalis*, *Habenaria viridis*, *Arum maculatum*, *Carex muricata*,

C. vulpina, Calamagrostis epigejos, Aira caryophyllea, Briza media, Festuca elatior, Bromus erectus, Brachypodium pinnatum, Polystichum aculeatum, etc.

The second patch of Oolite consists of a strip of land beside the Eye Brook, commencing near East Norton Station, and running nearly to Rockingham Station.

The plants found here are much the same as those found on the northern patch, with the exception that the plants favourable to the chalk formation are absent, and in place thereof *Dipsacus pilosus, Picris echioides, Brachypodium pinnatum, Cnicus acaulis,* and others are to be found.

Most British plants peculiar to pasture and cultivated land are found in the county.

Two very curious facts are noticed, namely : that *Digitalis purpurea* is not found wild on the eastern side of the Soar, and that *Arum maculatum* and *Mercuralis perenne* have not been found in the Lutterworth district, the part of the county which falls into the Swift and Avon basin.

Several lines of railways cross the county in different directions, and to these we have to look for the responsibility of the introduction of several plants. The *Linaria vulgaris* is by no means a common plant, but it is now found on all the lines of rail in the county. The *Reseda lutea*, too, which a few years ago was unknown near Leicester, can now be found in several places on the railway banks and sidings. The same applies to *Matricaria discoidea,* and several others.

A large number of aliens has been recorded

in the vicinity of Leicester. This is not to be wondered at when the town is considered as a centre of commerce, with four lines of railway running into it, and the several different trades which are carried on within its area. The aliens and casuals are not the primal objective of this chapter, but to quote one instance :—At Blaby Mill, in 1903, W. A. Vice, Esq., M.B., found 113 plants which were new to the station ; 53 proved to be casuals, imported from other countries, and 60 British plants, but not previously noticed, the exotics ranging from South America to the Levant ; the most noticeable being *Apera intermedia*, which Professor E. Hackel stated had not previously been reported, except from one station in Asia Minor.

There is no quantity of natural water to be found in the county. Groby Pool, about forty acres, is the largest. There are, however, several reservoirs, which are of considerable area — Swithland, Cropston, Thornton, Saddington, Moira, etc.—in and around which aquatic and semi-aquatic vegetation is now well established. Much speculation arises as to how many plants have been brought to these reservoirs. Water-fowl, wind, and water can no doubt undertake a large share of the responsibility.

At Cropston, *Inula britannica* has been established for several years, and has become quite naturalized and plentiful ; and *Mimulus langsdorfii* thrives beside the brook which leads to the Swithland Reservoir. The Bee orchis has been found at the head of the

backwater near to Swithland Hall, and the Danewort, only a field or so removed. Thornton is some years older than these reservoirs, and it is the habitat of many interesting plants. Moira reservoir is used for the storage of water to supply the Ashby Canal, and is situated on the extreme western boundary of the county. Two of the rarer of Leicestershire plants which occur there are *Potentilla palustris* and *Pilularia globulifera*.

The Flora of the rivers and canals is partly accounted for by the traffic. An instance of this is found in the *Elodea canadensis*, which was first noticed as a British plant in 1847, when Miss Kirby, of Lubenham, found it in Foxton reservoir. (This probably refers to the small storage ponds at the locks.) Twenty-five years later it was found in nearly every canal in the country.

The Grand Junction Canal comes into the county near Husbands Bosworth, on the southern border, and traces its way on the high ridge to Foxton, where it descends a long series of locks to a much lower level, and finally reaches the River Soar near Aylestone. Until a few years ago this system was teeming with plant-life, but it became so bad that the Company had to have it cleaned, with the consequence that many of the aquatics have been destroyed or crippled for years to come. An excellent index to the rich Flora of the canal is still preserved in the "Old Arm"—a branch which runs from the foot of Foxton Locks to Market Harborough, about three miles in length.

The following plants may be found there,

most of them in plenty :—*Thalictrum flavum, Ranunculus circinatus, R. sceleratus, Caltha palustris, Nymphæa lutea, Nasturtium amphibium, Barbarea vulgaris, Lychnis Flos-cuculi, Stellaria graminea, Hypericum quadratum, Malva sylvestris, Geranium pratensis, Vicia gemella, V. cracca, Spiræa ulmaria, Callitriche stagnalis, Lythrum salicaria, Epilobium hirsutum, Apium nodiflorum, Œnanthe fistulosa, Galium palustre,* var. *Witheringii, Pulicaria dysenterica, Hypochœris radicata, Myosotis palustris, Scrophularia aquatica, Veronica anagallis, V. Beccabunga, Mentha hirsuta, Rumex acetosa, R. acetosella, R. Hydrolapathum, Daphne Laureola, Elodea canadensis, Iris Pseudacorus, Juncus bufonius, Typha angustifolia, T. latifolia, Lemna trisulca, L. minor, L. gibba, L. polyrrhiza, Alisma plantago, Sagittaria sagittifolia, Potamogeton natans, P. lucens, P. perfoliatus, P. crispus, P. densus, P. pectinatus, Zannichellia palustris, Scirpus lacustris, Carex vulpina, C. remota, C. pseudocyperus, C. acutiformis, C. riparia,* etc.

Saddington reservoir has now a Flora as rich as any water in the county. As it is used for supplying the Grand Junction Canal, with a few exceptions the plant-life agrees with that in the Market Harborough branch.

The River Trent forms the N.W. boundary of the county from Castle Donington Park to its junction with the Soar at Redhill, and some interesting plants are to be found there. At King's Mills, one of the most picturesque spots in Leicestershire, the river spreads out considerably, and several islets appear in its

course. These are covered with vegetation. *Geranium lucidum* is found on the walls and old stone buildings; masses of *Tanacetum vulgare* and *Nasturtium sylvestre* are to be found on the river bank, and *Ranunculus fluitans, Potamogeton pectinatus, P. perfoliatus* and *P. crispus* are in the river and mill-race. Lower down the river are found *Hottonia palustris* and *Callitriche obtusangula. Myosurus minimus* has been recorded from the arable land adjoining.

The Nuneaton and Ashby-de-la-Zouch Canal traverses the western portion of the county, and many good things are there found. *Potamogeton luceus, P. perfoliatus, P. crispus, P. natans, Myriophyllum spicatum, Carex pseudo-cyperus,* etc., are features of the waterway.

The Nottingham and Grantham Canal enters the county on the north-eastern side, near Redmile and Bottesford, and it contains an extensive Flora, but not varying much from that of the other canals in the county.

ZOOLOGY.

By A. R. Horwood, *Sub-Curator, Leicester Corporation Museum.*

INVERTEBRATA.

(Exclusive of the Insecta, for an account of which see pp. 363, *et seqq.*)

No connected account of the Invertebrate Fauna of the county has hitherto been attempted, and the following preliminary contribution is far from complete, but, in so far as it is the first paper dealing with these animals as a whole, it may be regarded as original. For the material on which it is founded the writer has drawn largely upon scattered records published in the Transactions of the Leicester Literary and Philosophical Society and Sir Oswald Mosley's Natural History of Tutbury (which contains some Leicestershire records), supplemented by his own researches and those of others.

Owing to the narrow limit afforded for this section of the county Natural History, only a cursory glimpse can be obtained of the Fauna as a whole from this account, and localities have been unavoidably omitted.

Special thanks are due to Mr. D. J. Scourfield for notes on the Crustacea, to Dr. J. R. Plant, the Rev. Canon A. M. Norman, Messrs. T. Edwards, C. Oldham, E. Pattison, and C. E. Wright for notes on the Mollusca.

PROTOZOA.

These animals, formerly known chiefly as "Animalcules," "Infusoria," etc., occur in

most localities where suitable habitats or conditions exist. In Leicestershire there are the large reservoirs of Saddington, Thornton, Swithland, Cropstone, Blackbrook, Moira, etc., not to mention innumerable ponds and other tracts of water, where they are to be met with. These remarks apply also to the Rotifera, Crustacea, and Polyzoa.

The following is a list of the principal forms that have a more or less wide distribution :—*Amœba diffluens*, *Amœba spp.*, *Centropyxis aculeata*, *Difflugia globulosa*, *Difflugia acuminata*, *Difflugia corona*, *Actinophrys sol*, *Actinosphaerium eichornii*, **Fuligo varians* (= *Æthalium septicum*), **Didymium hemisphæricum*, **Didymium squamulosum*, **Didymium farinaceum*, *Monas termo*, *Opalina spp*, **Gonium pectorale*, **Eudorina elegans*, **Pandorina morum*, **Volvox globator*, *Euglena viridis*, *Euglena sanguinea*, *Loxodes rostrum*, *Trachelius ovum*, *Trachelius anas*, *Coleps hirtus*, *Paramœcium aurelia*, *Colpoda cucullus*, *Leucophrys spathula*, *Cyclidium glaucoma*, *Stentor mulleri*, *Stentor spp*, *Stylonychia mytilus*, *Kerona polyporum*, *Euplotes patella*, *Aspidisca costata*, *Vorticella microstoma*, *Vorticella convallaria*, *Carhesium polypinum*, *Epistylis digitalis*, *Epistylis sp*, *Vaginicola crystallina*, *Vaginicola globosa*, *Cothurnia sp*, *Ophrydium versatile*.

PORIFERA.

Of this group there are only two fresh water species, found in lakes and running streams. *Ephydatia* (*Spongilla*) *fluviatilis*

* These were formerly regarded as Plants, being recorded in the Flora of Leics., 1886.

occurs in running water in the River Trent and River Soar. *Spongilla lacustris* in Saddington Reservoir.

COELENTERATA.

Of this group only two species of *Hydra* occur within the area considered, viz.:—*Hydra vulgaris* (= *H. grisea*), *Hydra oligactis* (= *H. fusca*).

PLATYHELMINTHES.

Of the Parasitic or Intestinal Flat-worms some few have an almost universal distribution, others are local, but the following may be enumerated:—*Planaria lactea*, *Distomum hepaticum*, *Distomum lanceolatum*, *Tænia solium*, *Tænia* (*Cœnurus*) *serialis*.

NEMATHELMINTHES.

To the "Thread-worms," etc., the remarks made under the heading Flat-worms equally apply. The following species, parasites of man and the lower animals, are representative of the group locally:—*Ascaris lumbricoides*, *Oxyurus vermicularis*, *Trichocephalus dispar*, *Filaria sanguinis hominis*, *Anguillula aceti*, *Anguillula glutinis*, *Gordius aquaticus*, *Echinorhynchus gigas*.

ANNELIDA.

OLIGOCHŒTA (EARTH WORMS, ETC.)

Encyhtræus albidus, *Stylaria lacustris*, *Nais proboscidea*, *Nais spp*, *Tubifex rivulorum*, *Lumbricus terrestris*, *Lumbricus purpureus*, *Lumbricus rubellus*, *Allobophora longa*, *Allobophora chlorotica*, *Allobophora fœtida*, *Allurus tetrædrus*, *Dendrobæna subrubicunda*, *Aulostoma gulo*, *Piscicola geometra*, *Hirudo medicinalis*.

ROTIFERA.

Floscularia cornuta, *Floscularia ornata*, *Floscularia campanulata*, *Stephanoceros eichornii*, *Melicerta tubicolaria*, *Melicerta ringens*, *Limnias ceratophylli*, *Conochilus volvox*, *Philodina megalotrocha*, *Rotifer vulgaris*, *Hydatina senta*, *Synchæta sp*, *Notommata werneckii* (1st British record, Bates), *Notommata aurita*, *Mastigocerca rattus*, *Mastigocerca carinata*, *Dinocharis tetractis*, *Salpina redunca*, *Euchlanis lyra*, *Pterodina patina*, *Brachionus amphiceros*, *Brachionus sp*, *Noteus quadricornis*, *Chætonotus larus*.

CRUSTACEA.

CLADOCERA.

Diaphanosoma brachyurum, *Daphnia magna*, *Daphnia psittacea*, *Daphnia pulex*, *Daphnia pulex* forma *obtusa*, *Daphnia pulex* forma *propinqua*, *Daphnia pulex* forma *hamata*, *Daphnia longispina*, *Daphnia hyalina*, *Daphnia hyalina* form *galeata*, *Daphnia sp*, *Scapholeberis mucronata*, *Scapholeberis mucronata* forma *cornuta*, *Simocephalus vetulus*, *Ceriodaphnia reticulata*, *Ceriodaphnia megalops*, *Ceriodaphnia pulchella*, *Ceriodaphnia affinis*, *Bosmina longirostris*, *Bosmina longirostris* forma *cornuta*, *Ilyocryptus sordidus*, *Macrothrix laticornis*, *Lathonura rectirostris*, *Eurycercus lamellatus*, *Camptocercus rectirostris*, *Acroperus harpæ*, *Alona affinis*, *Alona tenuicaudis*, *Alona guttata*, *Alona rectangula*, *Alona rostrata*, *Leydigia quadrangularis*, *Alonella nana*, *Peratacantha truncata*, *Pleuroxus uncinatus*,

Pleuroxus ?**denticulatus*, *Chydorus globosus*, *Chydorus sphæricus*, *Chydorus* spp.

OSTRACODA.

Cypria ophthalmica, *Cyclocypris serena*, *Cyclocypris laevis*, *Cypris fuscata*, *Cypris virens*, *Herpetocypris reptans*, *Cypridopsis vidua*, *Candona lactea*, *Limnocythere monstrifica* (Fleckney).

BRANCHIURA (FISH-LOUSE).

Argulus foliaceus, on Trout, Thornton Reservoir; *Argulus coregoni*, on Barbel, Leics. (1st British record).

COPEPODA.

Diaptomus castor, *Diaptomus gracilis*, *Cyclops strenuus*, *Cyclops strenuus*, form *vicinus*, *Cyclops leuckarti*, *Cyclops dybowskii*, *Cyclops bicuspidatus*, *Cyclops vernalis*, *Cyclops viridis*, *Cyclops fuscus*, *Cyclops albidus*, *Cyclops serrulatus*, *Cyclops prasinus* form *varius*, *Cyclops sp.*, *Canthocamptus minutus*, *Canthocamptus lucidulus*, *Canthocamptus pygmaeus*, *Canthocamptus zschokkei*, *Canthocamptus furcatus*.

MACRURA.

The Fresh-water Cray-fish, *Potamobius pallipes* (*Astacus fluviatilis*), occurs at Aylestone, specimens from that locality being preserved in the Invertebrate Department in the Leicester Museum.

AMPHIPODA.

Gammarus pulex, the Fresh-water Shrimp, is generally distributed in the rivers and streams of the county.

* If correct, the first British record of this species; but Mr. D. J. Scourfield thinks it may be either P. aduncus or P. trigonellus. It is based on a note of the late Mr. Garnar.

ISOPODA.

Asellus aquaticus, Fresh-water Asellus; *Porcellio scaber*, Scabrous Wood-louse; *Oniscus asellus*, Wood-louse; *Armadillidium vulgare*, Lesser Pill Millipede. All of the above occur in the county, and probably some others, including albino forms of *Oniscus asellus*.

MYRIAPODA.

Polyxenus lagurus, *Glomerus marginata*, *Iulus fallax*, *Iulus sabulosus*, *Iulus londinensis*, *Iulus punctatus*, *Iulus pulchellus*, *Blaniulus vermestus*, *Polydesmus complanatus*, *Lithobius forficatus*, *Lithobius vulgaris*, *Lithobius variegatus*, *Scolioplanes acuminatus*, *Geophilus ferrugineus*, *Geophilus subterraneus*, *Geophilus longicornis*.

ARACHNIDA (SPIDERS, ETC.).

Over 500 species of Spiders are known to inhabit different stations in the British Isles, and, therefore, the following list must be taken as purely preliminary, a remark applying also to some of the other groups:—*Drassus cupreus*, *Anyphœna accentuata*, *Amaurobius ferox*, *Amaurobius fenestralis*, *Coelotes atropos*, *Tegenaria parietina*, *Tegenaria atrica*, *Tegenaria derhamii*, *Theridion nervosum*, *Theridion spp.*, *Steatoda bipunctata*, *Crustulina guttata*, *Linyphia sp.*, *Tmeticus bicolor*, *Lophomma punctatum*, *Baryphyma pratensis*, *Tetragnatha extensa*, *Meta merianæ*, *Cyclosa conica*, *Epeira pyramidata*, *Epeira diademata*, *Epeira alsine*, *Epeira cucurbitina*, *Epeira atrica*, *Epeira umbratica*, *Epeira patagiata*, *Epeira ornata*, *Epeira spp.*, *Misumena vatia*, *Xysticus cristatus*, *Micrommata virescens*, *Pisaura*

mirabilis, *Trochosa ruricola*, *Lycosa amentata*, *Epiblemum scenicum*.

MOLLUSCA.

GASTEROPODA.

Testacella scutulum, *Limax maximus*, *Limax maximus* var. *fasciata*, *Limax maximus* var. *cellaria*, *Limax flavus*, *Agriolimax agrestis*, *Agriolimax agrestis* var. *sylvatica*, *Agriolimax lævis*, *Milax sowerbyi*, *Vitrina pellucida*, *Vitrea crystallina*, *Polita cellaria*, *Polita rogersi*, *Polita alliaria*, *Polita nitidula*, *Polita radiatula*, *Zonitoides nitidus*, *Zonitoides excavatus*, *Euconulus fulvus*, *Arion ater*, *Arion ater* var. *rufa*, *Arion ater* var. *brunnea*, *Arion intermedius*, *Arion hortensis*, *Arion fasciatus*, *Punctum pygmæum*, *Sphyradium edentulum*, *Pyramidula rupestris*, *Pyramidula rotundata*, *Pyramidula rotundata* var. *alba*, *Helicella virgata*, *Helicella itala*, *Helicella itala* var. *minor*, *Helicella itala* var. *alba*, *Helicella caperata*, *Helicella caperata* var. *subscalaris*, *Helicella caperata* var. *alba*, *Helicella cantiana*, *Hygromia hispida*, *Hygromia hispida* var. *conica*, *Hygromia hispida* var. *hispidosa*, *Hygromia hispida* var. *depilata*, *Hygromia hispida* var. *nana*, *Hygromia hispida* var. *subrufa*, *Hygromia hispida* var. *albocincta*, *Hygromia hispida* var. *albida*, *Hygromia rufescens*, *Hygromia rufescens* var. *depressa*, *Hygromia rufescens* var. *minor*, *Hygromia rufescens* var. *rubens*, *Hygromia rufescens* var. *albocincta*, *Hygromia rufescens* var. *alba*, *Acanthinula aculeata*, *Vallonia pulchella*, *Vallonia pulchella* var. *costata*, *Helicigona lapicida*, *Helix arbustorum*, *Helix arbustorum* var. *fuscescens*, *Helix*

arbustorum var. *flavescens*, *Helix aspersa*, *Helix aspersa* var. *nigrescens*, *Helix aspersa* var. *undulata*, *Helix aspersa* var. *flammea*, *Helix aspersa* var. *albo-fasciata*, *Helix aspersa* var. *zonata*, *Helix aspersa* var. *exalbida*, *Helix nemoralis*, *Helix nemoralis* var. *compressa*, *Helix nemoralis* var. *major*, *Helix nemoralis* var. *minor*, *Helix nemoralis* var. *roseolabiata*, *Helix nemoralis* var. *albolabiata*, *Helix nemoralis* var. *bimarginata*, *Helix nemoralis* var. *rubella*, *Helix nemoralis* var. *libellula*, *Helix nemoralis* var. *castanea*, *Helix nemoralis* var. *olivacea*, *Helix nemoralis* var. *hyalozonata*, *Helix nemoralis* var. *undulata*, *Helix hortensis*, *Helix hortensis* var. *conica*, *Helix hortensis* var. *minor*, *Helix hortensis* var. *roseolabiata*, *Helix hortensis* var. *tenuis*, *Heltx hortensis* var. *albina*, *Helix hortensis* var. *lutea*, *Helix hortensis* var. *arenicola*, *Ena obscura*, *Cochlicopa lubrica*, *Azeca tridens*, *Cæcilioides acicula*, *Jaminia cylindracea*, *Jaminia cylindracea* var. *curta*, *Jaminia muscorum*, *Vertigo pygmæa*, *Balea perversa*, *Clausilia bidentata*, *Clausilia bidentata* var. *dubia*, *Succineaputris*, *Succinea elegans*, *Succinea elegans* var. *pfeifferi*, *Carychium minimum*, *Ancylus fluviatilis*, *Acrolaxus lacustris*, *Acrolaxus lacustris* var. *albida*, *Limnæa auricularia*, *Limnæa pereger*, *Limnæa pereger* var. *obtusa*, *Limnæa pereger* var. *ovata*, *Limnæa palustris*, *Limnæa truncatula*, *Limnæsa truncatula* var. *minor*, *Limnæa truncatula* var. *elegans*, *Limnæa stagnalis*, *Limnæa stagnalis* var. *albida*, *Planorbis corneus*, *Planorbis albus*, *Planorbis glaber*, *Planorbis crista*, *Planorbis carinatus*, *Planorbis carinatus* var. *disciformis*, *Planorbis umbili-*

catus, *Planorbis vortex*, *Planorbis spirorbis*, *Planorbis contortus*, *Planorbis fontanus*, *Segmentina nitida*, *Physa fontinalis*, *Physa fontinalis* var. *curta*, *Aplecta hypnorum*, *Bithynia tentaculata*, *Bithynia tentaculata* var. *ventricosa*, *Bithynia tentaculata* var. "*zonata*," *Bithynia leachii*, *Vivipara vivipara*, *Vivipara contecta*, *Valvata piscinalis*, *Valvata piscinalis* var. *depressa*, *Valvata piscinalis* var. *antiqua*, *Valvata cristata*, *Pomatias elegans*, *Neritina fluviatilis*, *Neritina fluviatilis* var. *trifasciata*.

LAMELLIBRANCHIATA.

Dreissensia polymorpha, *Dreissensia polymorpha* var. *angusta*, *Dreissensia polymorpha* var. *dilatata*, *Unio pictorum*, *Unio tumidus*, *Unio tumidus* var. *ovalis*, *Unio tumidus* var. *ponderosa*, *Unio tumidus* var. *mulleri*, *Anodonta cygnæa*, *Anodonta cygnæa* var. *arenaria*, *Anodonta cygnæa* var. *rostrata*, *Anodonta cygnæa* var. *incrassata*, *Anodonta cygnæa* var. *pallida*, *Sphærium rivicola*, *Sphærium corneum*, *Sphærium corneum* var. *pisidioides*, *Sphærium corneum* var. *flavescens*, *Sphærium lacustre*, *Sphærium lacustre* var. *brochoniana*, *Pisidium amnicum Pisidium casertanum Pisidium henslowianum*, *Pisidium pulchellum*, *Pisidium pusillum*, *Pisidium obtusale*, *Pisidium gassiesianum*.

POLYZOA.

The Freshwater Polyzoa have received little attention at the hands of local faunists, and scarcely anything is known of their distribution.

VERTEBRATA.*

PISCES.

The Fish-Fauna of Leicestershire is not characterized by any striking species or varieties, and is similar to that of the surrounding counties. Salmon, which flourish better in the Trent, sometimes occur in the River Soar as spent fish, one being caught as recently as 1904 at Cossington. The following have been met with in the rivers, lakes, and streams in the county :—Fringe-lipped Lampern, Common Lampern, Sturgeon, Broad-nosed Eel, Common Eel, Grayling (rare), American Brook-Trout (introduced), Common Trout, Salmon (River Soar), Pike (up to 33 lbs.), Spined Loach, Common Loach, Bleak, White Bream, Common Bream, Tench, Minnow, Rudd, Dace, Chub (up to 7 lbs. at Thornton Reservoir, one of the best pieces of water for coarse-fish), Roach, Gudgeon, Barbel, Crucian Carp, Carp (up to 12 lbs. 9½ ozs. at Barratt Pool, Moira), Burbot, Nine-spined Stickleback, Three-spined Stickleback, Miller's Thumb, Ruffe, Perch (up to 5 lbs. at Wistow).

AMPHIBIA.

The Smooth Newt, Great Warty Newt, Toad, and Frog are the only representatives of this class occuring in the county, but all are widely distributed, the two last-named being often subject to considerable variation in colour and markings.

* Note.—The following Summary of the Recent Vertebrata of of Leicestershire is based largely on those recorded in "The Vertebrate Animals of Leicestershire and Rutland," M. Browne, 1889, with additions, etc. from other sources.

REPTILIA.

On the Charnwood Forest the Blind-Worm is occasionally to be seen on bright sunny days, and the Sand-Lizard is recorded by Harley* from the same region. The Common Lizard can only be called local, as also the Viper, which is more usually met with in the neighbourhood of Charnwood. The Common or Ringed Snake is everywhere abundant, often attaining to great length.

AVES.

The list of Birds of Leicestershire—about 220 species of which have been met with—contains none that are confined to the district. Of this number about thirty regularly visit the district in summer and breed, some others there are that are rarely observed, and less often known to breed. Some sixty-one species are resident, and of the rest about half visit the county periodically in winter, or are only known to occur as occasional or rare stragglers from the coast, or in the course of their migration, when such examples as have been noted in the last instance have either fallen foul of telegraph wires or other artificial or natural obstacles, or have found their way into the "bag" of some sportsman, naturalist, or enquiring countryman, the last mentioned contributor to our county Avi-Fauna being in no small way responsible for many interesting additions, *e.g.*, Pallas's Sand-Grouse.

The following is a list of the birds, so far observed, as having occurred as residents,

* MS. Catalogue of the Vertebrated Animals of Leicestershire, 1840—55.

or on migration, by accident or otherwise, in the county of Leicester, localities, etc., being given only for the most interesting species :— Little Auk, Common Guillemot, Razorbill, Little Grebe (r),* Eared Grebe, Sclavonian Grebe, Great Crested Grebe (summer visitor, and breeding on many reservoirs—probably on the increase), Red-throated Diver, Black-throated Diver, Manx Shearwater, Leach's Petrel, Storm Petrel, Richardson's Skua, Pomatorhine Skua, Common Skua, Little Gull, Black-headed Gull, Lesser-black-backed Gull, Kittiwake, Black Tern, Roseate Tern, Common Tern (periodically), Arctic Tern, Curlew (formerly resident), Whimbrel, Black-tailed Godwit, Greenshank, Spotted Redshank Wood-Sandpiper, Green-Sandpiper (winters at Quorn and elsewhere), Common Sandpiper (occasionally breeds), Sanderling (Blackbrook Reservoir, *Harley*), Ruff, Curlew Sandpiper Loughborough, *Harley*), Purple Sandpiper (†Abbey Meadow, L.M.), Dunlin, Jack Snipe, Common Snipe (breeds here and there) (r), Great Snipe, Woodcock (formerly bred), Red-necked Phalarope (Birstall, L.M.), Grey Phalarope (an immigration in 1891 afforded an example killed against telegraph wires at Tugby; also birds from Wanlip and Croft, L.M.; it has also occurred at Wellsborough, Cossington, Twycross, and Foxton), Avocet (once seen by Mr. Wolley, of Beeston, at the confluence of the Rivers Soar and Trent, *i.e.*, near Red Hill Tunnel, M.R.), Oyster-Catcher (Loughborough, Aylestone), Turn-

* Resident species are distinguished by this letter (r).
† L.M. = Leicester Corporation Museum Bird Collection.

stone (shot at the Abbey Meadow on several occasions, but not recently), Lapwing (r), Dotterel (Charnwood Heath, Buddon Wood, Coleorton, Ilston), Ringed Plover, Grey Plover (Twelve Bridges, L.M.), Golden Plover, Cream-coloured Courser (Timberwood Hill, October 15, 1827, 5th recorded British example, figured by *Selby* and by *Browne op. cit.*), Collared Pratincole (nr. Leicester, 19th June, 1849, L.M.), Stone-Curlew (used to breed on Stonesby Heath), Crane (Groby, *Harley*), Coot (r.), Moorhen (r.), Corncrake, Little Crake (nr. Leicester, *Harley*), Spotted Crake (rare summer visitor, possibly breeding formerly), Water-Rail (r.), Black Grouse (formerly resident), Red Grouse (formerly resident), Quail (has bred), Partridge (r.), Barbary Partridge (Edmondthorpe, figured by *Yarrell*), Red-legged Partridge (r.), Pheasant (r.), Pallas's Sand-Grouse (between Buddon Wood and Swithland, 30th May, 1888, communicated to F. F. How), Passenger Pigeon (Scalford), Turtle Dove, Stockdove (r.), Wood Pigeon (r.), Smew, Red-breasted Merganser (Coleorton, 1860), Goosander, Velvet Scoter (Saddington, L.M.), Common Scoter, Harlequin Duck (a pair recorded from Groby as shot in 1845 by Chaplin, the keeper ; if correct the 4th and 5th British examples), Goldeneye, Pochard, Scaup, Tufted Duck (an increasingly frequent winter visitor), Shoveller, Teal (r.), Garganey (Saddington Reservoir, 1868), Wild Duck (r.), Gadwall (Lutterworth, immature, L.M.), Pintail, Wigeon, Common Sheldrake (Barkby, 1881),

Whooper Swan, Bewick's Swan (Swithland, 1906, *G. Frisby*), Mute Swan (introduced), Canada Goose (introduced), Brent Goose (Kirkby Mallory, Syston, L.M.), White-fronted Goose (Tur Langton, 1879), Bean-Goose (Noseley, 1880), Grey Lag Goose (Shangton, 1882), Egyptian Goose (Leicester, 1843, usually semi-domesticated), White Stork (Melton Mowbray, 1849, Scalford Lodge 1851, Narborough Road, Leicester, 1873, L.M.), Bittern, Night-Heron (Ansty, Donnington, 1846), Little Bittern (Groby Pool, 1853, Glenn, Nov., 1867), Heron (r.), Gannet, Shag, Cormorant, Osprey, Kestrel (r.), Red-footed Falcon (Machine-house, Belgrave, July 1, 1865, L.M.), Merlin (probably formerly resident), Hobby (formerly bred), Peregrine, Falcon, Honey-Buzzard, Kite (probably bred formerly at Kite Hill, Charnwood Forest, but not seen for years), Sparrow-Hawk (r.), Gos Hawk (formerly resident), White-tailed Eagle (Bradgate Park, 1840, Swannington, Coleorton, 1879), Rough-legged Buzzard, Buzzard (formerly resident and breeding), Montagu's Harrier (Heath Farm, Earl Shilton, 1893, L.M.), Hen Harrier (said to have bred formerly on Charnwood Forest), Marsh Harrier (Buddon Wood, 1841), Little Owl (Kibworth, shot 28th July, 1906, L.M.), Tawny Owl (r.), Short-eared Owl, Long-eared Owl (r.), Barn Owl (r.), Cuckoo, Hoopoe (Nailstone, Stapleton, Great Peatling, summer visitor), Kingfisher (r.), Wry-neck, Green Woodpecker (r.), Lesser Spotted Woodpecker (r.), Great Spotted Woodpecker (r.), Nightjar, Swift, Woodlark (r., but rare, and apparently not seen since Harley's time), Skylark (r.),

Raven (formerly resident, breeding at Bradgate and Garendon), Rook (r., on the increase), Hooded Crow, Carrion Crow (r., very common in N. and E. Leics.), Jackdaw (r.), Magpie (r.), Jay (r.), Rose-coloured Pastor (Croft, Enderby, 1870), Starling (r.), Snow Bunting, Reed Bunting (r.), Ortolan Bunting (Melton Mowbray, *R. Widdowson*), Cirl Bunting (r., but rare, seldom found to breed), Yellow Hammer (or Yellow-Ammer) (r.), Corn Bunting (r.), Crossbill (bred at Bradgate Park in 1839, according to *Harley*), Parrot Crossbill (Melton Mowbray, 1849), Bullfinch (r.), Twite (not known to breed here, and only met with in winter, but it breeds in Shropshire), Lesser Redpole (r., common in N. and E. Leics.), Linnet (r.), Brambling, Chaffinch (r.), Tree-Sparrow (r.—overlooked), House Sparrow (r.—very much too common), Hawfinch (r.—overlooked, breeds here and there), Greenfinch (r.), Siskin, Goldfinch (r., becoming yearly scarcer), Tree-Creeper (r.—overlooked), Sand-Martin, Martin, Swallow, Pied Flycatcher, Spotted Flycatcher, Waxwing (occurring as a rare winter visitor periodically), Red-backed Shrike, Great Grey Shrike (a rare winter visitor, occurring at intervals in some numbers), Tree-Pipit, Meadow-Pipit (r.), Ray's or Yellow Wagtail, Grey Wagtail (frequent as a winter visitor), Pied Wagtail (r.), Wren (r.), Nuthatch (r., local), Blue Titmouse (r.), Marsh Titmouse (r.), British Coal Titmouse (r.), Great Titmouse (r.), British Long-tailed Titmouse (r.), Bearded Titmouse (probably not now to be met with away from the E. coast, but has occurred at

Aylestone, where it is said to have bred, and at Groby), Dipper (formerly resident on Charnwood Forest), Hedge-Sparrow (r.), Grasshopper Warbler, Sedge-Warbler, Aquatic Warbler (Loughborough, 1846, 2nd British example, *J. E. Harting*), Reed Warbler (breeds as a summer visitor at Narborough Bogs, Swithland, Groby, etc.), Wood-Warbler, Willow-Warbler, Chiffchaff, Goldcrest (r.), Garden-Warbler, Blackcap, Lesser Whitethroat, Whitethroat, Nightingale, Redbreast (r.), Black Redstart (Belgrave, 19th Oct., 1888, L.M., *F. F. How*, figured by *Browne op. cit.*), Redstart (r.), Stonechat (r.), Whinchat, Wheatear (rarely breeding as a summer visitor, and if so probably only on Charnwood Forest), Ring-Ouzel (formerly resident on the Forest and breeding, as it does now in the Peak district), Blackbird (r.), Fieldfare, Redwing, Song-Thrush (r.), Missel-Thrush (r.).

MAMMALIA.

Within historic times the Wild Boar, Reindeer, Roe, Long-fronted Ox (*Bos longifrons*, Owen), Wolf, Wild Cat—to which should probably now be added the Pine-Marten—have become extinct, the Goat, Sheep, and Horse, and perhaps the descendants of the Long-fronted or Keltic Ox, remaining only as domesticated animals. The Fallow Deer and Red-Deer survive only to grace the remnants of our older parks, the latter still breeding at Bradgate, the former being usually examples introduced from elsewhere. The Hare, Badger, Otter and Fox only hold their own because they have been protected, to a certain extent, but

especially more recently, as objects of sport or the chase. Others, treated as vermin or pests, as the Squirrel, Water-Vole, Hedgehog, Mole, Weasel, Stoat, Polecat, are now very rapidly becoming scarcer. Some of the Mice, the House Mouse, Brown Rat, and Rabbit, however, are only too common.

The following is a list of Mammals still to be met with in Leicestershire :—Fallow-Deer (introduced), Red-Deer (indigenous at Bradgate), Squirrel, Dormouse (only met with once apparently, and recorded by Harley from Ravenstone, in the N.W. of the county), Bank-Vole (Belvoir, etc.), Field-Vole, Water-Vole, Long-tailed Field Mouse, Harvest-Mouse (rare), House-Mouse, Brown Rat, Common Rabbit, Hare (becoming scarcer ; examples of introduced Scotch and Irish Hares are occasionally shot), Noctule, Pipistrelle, Natterer's Bat (rare, Aylestone, figured by *Browne*, op. cit.), Daubenton's Bat (rare, Aylestone), Whiskered Bat (rare, Sept. 17, 1888, Lubenham, *Kirby*, L.M.), Long-eared Bat (local), Barbastelle (rare, Gumley, 1876), Common Hedgehog, Water-Shrew (rare, Sysonby, Narborough, Glenfield, Stoughton), Common Shrew, Otter (Narborough, Enderby, Loughborough, etc.), Common Mole, Badger (Owston, Tilton, Keythorpe, Laughton, etc.), Weasel, Stoat (ermine-coated examples occasionally occur), Pole-Cat (becoming rapidly rarer each year), Pine-Marten (Bradgate, 1868, probably now extinct), Fox (as the best grass-country in England, Leicestershire can probably boast of as many foxes as any other county in the kingdom).

ENTOMOLOGY.

By Frank Bouskell, F.E.S., *Chairman Entomological Section, Leicester Literary and Philosophical Society.*

The Entomology of the county cannot be dealt with seriously in the limited space available in this article; it is proposed to refer only to the Coleoptera and Lepidoptera. A full account of the work that has been done up to date will be found in The Victoria History of the counties (Leicestershire) Vol. I., by the author of this contribution.

COLEOPTERA.

The Coleoptera at present recorded amount to nearly 1800 species, and contain many species unrecorded by Canon Fowler for the Midlands in the standard text book on the order.

The better localities for collecting will be found to be Charnwood Forest, specially Bradgate Park and Buddon Wood, the latter locality producing most of the species found with the Wood Ant (*Formica rufa*). Owston Wood, on the Rutland border, has a varied flora, and naturally many beetles are found not noted from other parts. The Market Bosworth district is worth a visit, and all the reservoirs are productive of those species found at the margins of water.

The species not recorded for the Midlands by Canon Fowler will be found marked "*m*," and the following abbreviations will be used: Buddon Wood, "B.W."; Owston Wood,

" O.W." ; Bradgate Park, " B.P." ; Market Bosworth, " M.B." ; Bardon Hill, " B.H." ; Gumley, " Gy."

The following species, with brief notes, are probably the most interesting to students of geographical distribution :—

Calasoma inquisitor, B.W. On oaks, one of the most northern records; the specimens are distinctly darker than those from the south.

Blethisa multipunctata. Abundant at most of the reservoirs.

m. Dyschirius politus, M.B. Usually a coast species, but occasionally found inland

Chlænius vestitus and Oodes helopiodes are both recorded from the reservoirs.

Pterostichus oblongo-punctatus. Under wood chippings, M.B.

Sphodrus leucopthalmus. Rarely, in cellars and bones.

Anchomenus micans, piceus, and thoreyi are all recorded from the reservoirs, as are Bembidium obliquum, clarki, and flammulatum.

Trechus discus and rubens. Both from the Soar valley.

Hydroporus longulus, B.P., in running ditches.

Hydaticus transversalis, from B.P. and Gy.

Dytiscus circumflexus is worthy of record, from Stoughton.

Hydrophilus piceus, from Syston.

Aleochara lata, B.W.

m. A. cuniculorum, B.P.

m. A. lygæa, B.P.

A. moerens, from Desford.

Oxypoda formiceticola, B.W.
O.recodita,B.W. No other Midland record.
O. annularis, B.W., B.H.
Ischnoglossa corticina, B.P.
Ocyusa picina, Gy.
m. Ilbobates propinquus, M.B.
m. Calodera nigrita, Gy. *m.* C. riparia, Gy.
m. C. rubens, Gy. (there are only two other British localities).
Dinarda markeli, B.W.
Atameles emarginata, Gy.
m. Myrmedonia collaris, Saddington.
Gnypeta coerulea, Gy. Tachyusa stitula, Gy.
Falagria. All four species.
m. Gyrophæna poweri, Gy. G. lævipennis and G. manca, Gy.
m. G. strictula, Gy.
Agaricochara lævicollis, B.W.
Placusa infima, Gy.
m. Leptusa analis, Gy. (there is only one other English record from Dean Forest).
Bolitochara lucida, O.W., in fungi. B. lunulata, Gy., &c.
Oligota apicata, Gy. Sherwood Forest is the only other Midland record.
Deinopsis erosa, B.H., Thornton. No other Midland record.
m. Hypocyptus ovulum, Gy. H. seminulum, Gy.
m. H. discoideus. This is a fen species, but is recorded from the Leicester district.
Tachyporus solutus, Gy., &c. A local species.
m. T. pallidus, Kibworth.
m. Tachinus pallipes, B.H., rare.

T. scapularis, Gy. Only one other Midland record.

T. elongatus, Seal Wood. Only one other Midland record.

m. Bryoporus cernus, B.H. The only recent British record; there are only two old records previously.

Habrocerus capillicornis, Gy. A rare species in the Midlands.

Heterothops prævia, Gy. This and Burton-on-Trent appear to be the northern limit of its range.

Quedius longicornis, B.W. Under bark. This and Burton-on-Trent are the only English records.

Q. microps, B.W. No other Midland record except Cambridge.

Q. fulgidus, Q. brevis. Abundant, B.W.

m. Philonthus nigriventris, B.H.

m. P. quisquillarius. Common at all the reservoirs. Fowler says it does not appear to occur in the Midlands; we have found it in millions.

V. dimidiatus. This occurs with the type in the proportion of about 1%.

P. splendidulus, Kibworth, P. nigrita, Thornton, are both local.

m. P. nigritulus, Gy. Only three other British records.

P. fulvipes and P. puella, both from Charnwood Forest.

Xantholinus atratus, B.W., with Formica rufa.

m. X. Tricolor, M.B.

Lathrobium rufipenne, Leicester Frith, a very rare insect.

L. angustatum, Gy. No other Midland record.

m. L. filiforme, Gy. Only four other British records.

m. Stilicus subtilis, Knighton.

m. Scopæus sulcicollis, Gy. A southern species; Oxfordshire the most northerly record except this.

m. Medon apicalis, Gy. Reigate is the only other locality given by Fowler.

M. obsoletus, Gy., another very rare species

m. Sunius filiformis, Gy., usually a coast insect.

Evanesthetus scaber, M.B. Under water weeds.

Dianous coerulescens, B.P. Under the waterfall.

m. Stenus ater, Gy. Chiefly confined to the south.

S. fuscicornis, S. carbonarius, and S. geniculatus and S. nitens, all Gy.

Oxyporus rufus, B.H., in fungi. Rare in the Midlands.

m. Platystethus capito, Gy.

m. P. nitens, Gy.

m. Oxytelus piceus, Gy. O. fairmairei, B.P. Very few other localities.

m. Ancyrophorus omolinus, Gy. *m.* A. aureus, Gy.

m. Lesteva punctata, Gy., Leicester Frith All other records are from Scotland.

m. Acidota crenata, Gy.

Coryphium angusticolle, B.W., rare.

Omalium exiguum, Gy. O. salicis, Gy.

m. O. brevicorne, Gy. The first British record.

m. O. testaceum, Gy. Taken in the summer, 1862. No other British record.
m. Haplodera pygmæa, Gy.
m. Anthobium sorbi, Gy.
m. Proteinus atomarius, Gy.
m. Megarthrus hemipterus, Gy.
Prognatha quadricornis, not uncommon.
Bythinus securiger, B.W.
m. Rybaxis sanguinea, Saddington.
m. Euplectus kunzei, Gy.
Scydmænus goddarti, B.W.
Eutheia plicata, B.W.
Liodes orbicularis, Gy.
Cyrtusa minuta, Gy.
Anisotoma cinnamomea, A. oblonga, A. grandis, A. nigrita, all B.H.
m. Triathron markeli, B.H.
Necrophorus interruptus, B.H. Silpha reticulata, B.W.
Silpha dispar, Groby. Only one other Midland record.
S. atrata v. brunnea, B.W.
m. Choleva longula, Gy. *m.* Colon serripes, B.P.
m. C. puncticolle, Gy. Only two other British records.
m. C. latum, Gy.
m. Hister bissexstriatus, Leicester district.
Dendrophilus pygmæus, B.W.
m. Acritus punctum, Gy. Chiefly a coast insect.
A. nigricornis, Kegworth. A very rare species.
m. Trichopteryx fratercula, Gy. The only British record.
T. cantiana, Gy. Only three other records.
m. T. brevis, Gy. Only one other record.

m. T. longicornis, Gy. No other locality known.
m. T. jansoni, Gy. The only British specimens.
T. guerinii, Gy. Only three other records.
m. T. fuscula, Gy. The only record.
m. T. variolosa, Gy. The only record.
m. Ptilium rugulosum, Gy. The only locality.
m. Ptenidum lævigatum, Gy. Probably the only British record.
m. Orthoperus brunnipes, Gy. Only one other British specimen known.
m. O. punctulatus, Gy. The only record.
Subcoccinella 24-punctata, Leicester district.
Adalia obliterata, B.H. A form nearly black.
Scymnus arcuatus. Shenton the only locality in Fowler.
m. S. minimus, Gy. Confined to S.E. districts.
m. Lycoperdina bovistæ, B.W.
m. Olibrus bicolor, Leicester district.
m. O. millefoli, Gy.
m. Epurea silacea, Leicester district. A northern species.
m. E. variegata, Leicester district.
m. Nitidula rufipes, Gy. *m.* N. 4-pustulata, Gy.
m. Meligethes symphyti, Gy
Ips, all three species.
m. Pityophagus ferrugineus, Gy.
m. Ortocerus minutus, Gy.
M. Ditoma crenata, Gy.
Pediacus dermestoides, M.B.

m. Cartodere filiformis, Gy. C. filum, Gy. Only two other records.
m. Cryptophagus populi, Gy. Confined to S.E. districts.
m. Aphodius nitidulus, Leicester district.
Trox sabulosus, T. Scaber, both B.P.
m. Rhizotrogus solstitialis, Saddington.
Cetonia aurata, Blaby.
Trachys minutus, Gy.
Throscus dermestoides, B.P.
Melasis buprestoides, B.H.
Cryptohypnus 4-pustulatus, Soar valley.
C. dermestoides, B.P.
m. Megapenthes tibialis, Gy.
Sericosomus brunneus, M.B.
Corymbites pectinicornis, O.W. C. cupreus, B.P. C. æneus, B.P.
m. C. metallicus, Aylestone.
C. bipustulatus, B.P.
m. Malthodes atomus, Gy.
Malachius viridis, Gy.
m. Axinotarsus ruficollis, Charnwood.
Haplocnemus impressus, Gy.
H. nigricornis, M.B.
Tillus elongatus, O.W.
Clerus formicarius, O.W.
Ptinus 6-punctatus, Gy. P. lichenum, Gy.
m. Anobium denticolle, Leicester dist.
Cis hispidus and C. alni, B.W. *m.* Enneathron affine, Gy.
Aromia moschata, Quorn.
Callidium violatum, M.B. C. variabile, B.W. C. alni, Gy.
Clytus mysticus, M.B., O.W.
m. Molorchus minor, M.B., O.W.
m. M. umbellatarum, Charnwood.

Pachyta collaris, Gy.
Monachammus sartor, Leicester. M.sutor, Aylestone.
Stenostola ferrea, M.B.
Phytoecia cylindrica, Gy.
Tetropium gabrielli, M.B. The first specimens taken in Britain.
Orsodacna cerasi, Gy.
Donacia crassipes, dentata, clavipes, braccata, River Soar.
D. versicolora, bicolora, thalissina, B.P
D. sparganni, Misterton.
D. impressa, Kibworth.
Hæmonia appendiculata, Groby Pool. Only two other records.
Zeugophora flavicollis, Seal Wood. The only Midland record.
Cryptocephalus coryii, Gy. Only one other locality out of London district.
Chrysomela orichalcea, Knighton. C. varians, B.W. C. didymata, Charnwood.
C. fastuosa, Loughborough, Kibworth.
Melasoma ænea, Swithland.
Phyllobrotica 4-maculata, B.P., B.W.
Galerucella viburni, Thornton, Swithland.
G. nymphæ, Thornton.
G. tenella, Kibworth.
m. Longitarsus anchusæ, Leicester, Kibworth.
m. L. 4-guttatus, Gy.
L. castaneus, Evington.
L. fusculus, Gy. Only three other records.
m. L. atriceps, Gy.
m. L. lycopi, Gy. L. waterhousei, Gy. Only recorded from five other localities.
m. Hermæophaga mercurialis, Gy.

m. Phyllotreta nigripes, Gy.
Apthona nigriceps, Gy.
m. A. herbigrada, Ansty Lane.
m. Podagrica fuscicornis, Gy.
Epitrix pubescens, Gy. Only one other Midland record.
m Chætocnema sallbergi, Gy.
m. Psylliodes hyoscyami, Gy.
P. luteola, Ansty Lane. One of the rarest species.
Blaps similis, Glenfield.
Tenebrio obscurus, Leicester.
Hallomenus humeralis, M.B.
m. Abdera 4-fasciata, M.B. In fungus affected oak boughs.
Phyllœotrya rufipes, M.B.
Oncomera femorata, Gy., at sugar.
Brachytarsus fasciatus, B. varius, Sheet Hedges Wood.
Tropideres niveirostris, B.W. Only Midland record.
T. sepicola, B.W. Only one other British specimen.
Choragus sheppardi, Sheet Hedges Wood.
m. Rhynchites interpunctatus, B.W. R. sericeus, B.W., common. A rare Midland species. *m.* R. pubescens, B.W., on oaks.
m. Apion urticarium, Gy.
m. A. cruentatum, Aylestone.
m. A. bohemani, Kibworth.
m. A. confluens, Gy.
m. A. sorbi, Leicester district.
A. punctigerum, Gy. Only two other Midland records.
A. tenuæ, Leicester.
m. A. curtisi, Gy.

Otiorrhynchus raucus, Gy. O. scabrosus, B.P.

m. O. ligustici, B.P.

m. O. ovatus, B.P., a coast insect.

m. Trachyphlœus squamulatus, B.P.

m. T. alternans, Gy.

Cænopsis fissirostris, B.P. One other Midland record.

m. Strophosomus retusus, B.P.

Exomias pellucidus, Gy.

m. Brachysomus hirtus, Gy.

m. Tropiphorus carinatus, Gy.

m. Metallites marginatus, Gy.

m. Sitones waterhousei, Gy. *m.* S. meliloti, Gy.

S. puncticollis. Common; stated by Fowler to be not so.

Hypera pollux, Leicester Frith.

Trachodes hispidus, B.W. First discovered here 40 years ago, still occurs on the old spot.

Errirhinus scirpi, Syston.

Thryogenes festucæ, Leicestershire.

T. scirrhosus, near Leicester.

m. Dorytomus tremulæ, Gy. D. affinis, Gy.

D. melopthalmus, Ratby Lane.

m. Bagous glabirostris, Syston.

Anoplus roboris, Swithland. The only Midland record.

Acalyptus carpini, Gy. Only three other records.

Tychius tibialis, Gy.

m. Mecinus circulatus, Gy.

m. Anthonomus varians, Gy. A Scotch species.

m. Sciones thapsus, B.W.

Acalles, all three species, B.W.
m. Ceuthorrhynchus constrictus, Aylestone.
C. quadridens, Gy.
m. C. picitarsis, Gy.
m. C. urticæ, Gy.
m. Ceuthorrhynchidius horridus, Gy.
Phytobius comari, Aylestone.
m. P. canaliculatus, Thornton, Gy. Unrecorded from the Midlands.
m. Baris laticollis, Gy. *m.* B. picicornis, Aylestone. *m.* B. lepidi, Gy.
m. Hylastes cunicularis, Gy.
m. Hylastinus obscurus, Charnwood.
m. Cissophagus hederæ, Leicester Frith.
m. Xylechinus pilosus. An old record probably B.W.

The Entomological Section of the Leicester Literary and Philosophical Society hope to arrange an Excursion to Buddon Wood during the visit.

LEPIDOPTERA.

The Lepidoptera of the county contain many interesting species, but, as a rule, the better species are not numerous, and in no way compare with the Coleoptera.

A number of melanic forms occur, especially in the neighbourhood of Leicester, and other variation will be mentioned in the notes.

Charnwood Forest, Gumley, and Owston Wood are the better localities for collecting.

Rhopalocera.

Leucophasia sinapis (Wood White); recorded by Stainton and Coleman, and one record from Earl Shilton.

Colias hyale (Pale Clouded Yellow), Ansty Lane, but not taken since 1877.

C. edusa (Clouded Yellow), sometimes in numbers from various parts of the county, notably in 1877, 93, and 1900.

Var. Helice has been found with the type, but never in more than odd specimens.

Gonopteryx rhamni (Brimstone). Throughout the county, but never in numbers; a form with bright red tips to the forewings was taken at Kibworth.

Argynnis selene and euphrosyne, occasionally in various woods.

A. paphia and addippe, in woods on the Rutland side.

A. aglaia. Abundant at B.P. years ago, now extinct. Casual M.B. 1906.

Melitæa aurina, Charnwood years ago, last record B.H., 1892.

Vanessa C-album. A number of records, but none recent.

V. polychloros (Large Tortoiseshell), sometimes in numbers.

V. antiopa. A number of records for 1873.

Apatura iris (Purple Emperor), recorded by Stainton, no recent record.

Pararge egeria (Speckled Wood), from various woods, not common.

Epinephele hyperanthes (Ringlet), local, but not uncommon. Ab arete, the form without spots on the underside, has been taken at O.W.

Thecla W-album (White Letter Hairstreak), is our commonest butterfly; the pupæ can always be found at O.W.

T. quercus (Purple Hairstreak), widely distributed.

T. rubi (Green Hairstreak) is recorded from Quorn.

Lycæna argiolus (Holly Blue), widely distributed, but local.

Nemeobius lucina (Duke of Burgandy Frittillary). Recorded from Quorn many years ago.

Syrichthus malvæ, very local, but abundant at O.W. Ab. taras has been taken there.

Heterocera.

Acherontia atropos, widely recorded both in larval and perfect state.

Sphinx convolvuli, many records at flowers in the early autumn.

S. ligustri, rare, but recorded widely.

Deilephila galii and D. livornica,

Chœrocampa celerio. These three migrants have been all recorded occasionally.

C. porcellus, B.W., M.B. at honeysuckle. C. elpenor, larvæ in numbers near Loughborough.

Smerinthus ocellatus, populi and tiliæ all occur, the latter is the rarest.

Trochilum apiformis, three records, but should be found elsewhere.

T. craboniformis has been taken in numbers from osier beds near Loughborough.

Macroglossa stellatarum, gen. dist.

M. fuciformis. The old records have been confirmed from O.W., at ragged robin, and B.H., at honeysuckle.

M. bombyliformis, an old record.

Sesia tipuliformis, not uncommon, occasionally destructive to currants.

S. asiliformis, B.P., B.W. on ragwort and oak trunks.

S. culiciformis, Seal Wood.
S. formiciformis, Loughborough and Groby.
Ino statices, O.W., but confined to a small area, Gy.
Zygæna trifolii, no recent records.
Z. loniceræ, no recent note.
Z. filipendulæ, local, but not rare.
Hylophila prasinana, B.H., M.B., Quorn.
H. bicolorana, M.B., Quorn.
Nola srigula, Gy, Quorn, rare.
N. confusalis, bred from larva off oak, Knighton.
Nudaria senex, rare, Gy.
Lithosia mesomella, Gy.
L. griseola, Gy., Loughborough, &c.
V. stamineola, Knighton, Gy.
L. luriodeola, gen. dist.
Gnophria quadra, once Gy.
Deiopeia pulchella, one specimen of this migrant at Loughborough.
Nemeophila russula, Gy.
Spilosoma fuliginosa, B.H., Gy., Quorn.
S. urticæ, Knighton.
Hepialus, all five species. Velleda is very variable on Charnwood Forest.
Cossus ligniperda, often destructive.
Zeuzera pyrina, not common enough to do much harm.
Porthesia chrysorrhœa, local, nr. Leicester, &c.
Leucoma salicis, local, but not rare.
Ocneria dispar, an old record.
Psilura monacha, Quorn, B.W..
Dascyhira fascelina, Gy.
D. pudibunda, very local.
Orgyia gonostigma, bred from larvæ Loughborough, Gy.

Trichiura cratægi, abundant Leicester dist., at gas lamps.
Pœcilocampa populi, local, but gen. dist.
Bombyx neustria, local. A form without the white lines occurs in the Soar valley.
B. quercus, widely distributed, but not common.
Lasiocampa quercifolia, Leicester, Earl Shilton.
Saturnia pavonia. Two old records, now extinct.
Drepana lacertinaria, B.H., amongst birch
Drepana lacertinaria, B.H., amongst birch, not rare, Ashby-de-la-Zouch.
D. falcataria, B.H., Cloud Wood.
D. binaria, M.B., B.H., &c.
Dicranura furcula, Charnwood Forest, Gy., Loughborough.
D. bifida, occasionally in various localities, generally larvæ.
Pterostoma palpina, widely dist., at light, also larvæ.
Lophopteryx cuculla, Stoneygate.
Notodonta dictæa, rare, but widely dist.
N. dictæoides, Quorn.
N. dromedarius, Gy., B.H., Cloud Wood.
N. ziczac., M.B., B.H., &c.
N. chaonia, B.H., at rest, Loughborough from larva.
N. trimacula, Loughborough, Seal Wood.
Thyatira derasa, M.B., Stoneygate, Gy., &c., also larvæ.
T. batis, locally, at sugar.
Cymatophora or, Gy., rare.
C. duplaris, B.W., at sugar.
C. fluctuosa, Gy.

Asphalia diluta, occasionally, at sugar.
A. flavicornis, B.H., at rest, and larvæ off birch, Quorn.
Bryophila muralis, Gy.
Demas coryli, B.W., larvæ also.
Acronycta tridens, larvæ, gen. dist.
A. leporina, Cloud Wood, Tonge, rare.
A. aceris, B.P., Gy., Loughborough, rare.
A. megacephala, occasionally, but very local.
A. alni, often found in the larval state.
A. ligustri, Loughborough larvæ, Gy.
A. rumicis, gen. dist., larvæ, common.
Leucania conigera, not uncommon, at light.
L. turca, Loughborough.
L. obsoleta, Market Harborough.
Coenobia rufa, Aylestone.
Nonagria arundinis, larvæ out of Typha latifolia.
Calmia lutosa, Gy.
Hydrœcia petasitis, Stoneygate.
Xypophasia sublustris, Quorn, Gy., &c.
X. scolapicina, Gy., rare.
Cerigo matura, Blaby, Quorn, at sugar.
Luperina cespitis, Knighton, at light.
Mamestra abjecta, Knighton, Gy., rare.
M. sordida, Stoneygate, Glen Parva, &c.
M. albicolon, Leicester.
Apamea unanimis, Kibworth, Stoneygate, at sugar.
A. leucostigma, Gy.
Miana strigilis, fasciuncula, and arcuosa, all common.
Grammesia trigrammica, Saddington, Blaby, &c.
Caradrina morpheus, alsines, taraxaci, 4-punctata, all from Leicester.

Rusina tenebrosa, sugar at B.W., Gy.
Agrotis suffusa and saucia, Loughborough, Glen Parva, at sugar.
A. præcox, Gy. A. obscura, Knighton, South Wigston, Gy.
A. simulans, Gy.
Noctua glareosa, Whitwick.
N. triangulum, Gy., B.W.
N. stigmatica, Gy.
Panolis piniperda, B.H., Pachnobia rubricosa, at sallows, not rare.
Tæniocampa gothica v. gothicina, Knighton.
T. populeti, Loughborough larvæ, Knighton.
T. miniosa, Gy., Loughborough.
T. gracilis, found at osiers, Quorn.
Orthosia upsilon, lota and macilenta, occasionally at sugar and ivy.
Anchocelis rufina and litura, at gas lamps.
A. lunosa, at lamps, Loughborough, Gy.
Cerastis spadicea, at ivy.
Dasycampa rubiginea, Loughborough.
Xanthia, all six species have occurred.
Cirrhœdia xerampelina, common at lamps, Leicester dist.
Tethea subtusa, B.H., larvæ, M.B.
T. retusa, Gy., M.B.
Calymnia affinis and diffinis, occasionally at light and sugar.
Dianthœcia carpophaga, Quorn, Gy., larvæ.
D. capsincola, larvæ Quorn, Gy.
Hecatera serena, Gy.
Polia flavicincta, gen. dist.
Aplecta pasina, nebulosa and occulta have all occurred at Gy., M.B.
A. tincta, Gy., Stoneygate.
Hadena adusta, glauca, dentina, trifolii,

suasa, pisi, thalassina and contigua have all been taken at sugar.

H. rectilinea, Gy.

Xylocampa lithoriza, in spring, at rest, larvæ off honeysuckle.

Calocampa vetusta and exoleta, at sugar in autumn and sallows in spring.

Xylina ornithopus, semibrunnea and socia, at ivy and sugar, Gy.

Cucullia verbasi, on various species of Verbascum, in larval state.

C. scrophularia, Gy.

Plusia moneta reached Leicestershire in 1898; now the larvæ are common on aconitum and delphinium. We have noted it feeding on six species of aconitum.

P. festucæ, Leicester, larvæ off Mentha margin of canal, M.B.

Heliothis armigera, Leicester.

Erastria fuscula, Gy.

Catocala nupta, Medbourne, Gy.

Brethos parthenias, B.H. A fine lemon form has been taken.

B. notha, B.W., Swithland.

Hypena rostralis, B.W., amongst bilberry.

Geometræ.

Epione paralellaria, Earl Shilton, Quorn.

E. apiciaria, Leicester district.

Venila maculata, B.P.

Angeronia prunaria, Loughborough, Gy.

Ellopia prosapiaria, M.B.

Eurymene dolobraria, Knighton, Quorn, Gy.

Pericallia syringaria, Leicester dist., Gy., M.B. and larvæ.

Selenia bilunaria, gen. dist.; also the summer form, juliaria.

S lunaria, Kibworth, Knighton, Quorn, &c.
S. tetralunaria, Loughborough larvæ.
Eugonia autumnaria, Loughborough.
E. fuscantaria, Leicester dist., at lamps, larvæ, Gy.
E. erosaria, E. quercinaria, gen. dist.
Himera pennaria, Leicester, M.B., also larvæ.
Phigalia pedaria, gen. dist., an absolutely black form has been taken at Leicester, B.W. and M.B.
Nyssia hispidaria, on oaks, B.W., rarely B.H. an almost black form occurs.
Biston hirtaria, Gy.
Amphydasis prodromaria, in woods.
A. betularia, gen. dist. Var doubledayaria often occurs, also intermediate forms occasionally. It is much commoner than 20 years ago, which is not due in this case to "selected" surplus imagenes and larvæ being turned down by Entomologists.
Hemerophila abruptaria, gen. dist., a melanic form occurs.
Cleora glabraria is recorded by Matthews from Gy.
C. lichenaria, Loughborough, Gy.
Boarmia roboraria, Gy. B. consortaria, Gy.
Tephrosia consonaria, Gy.
T. crepuscularia, B.H., B.W., &c. T. biundularia, ditto. A dark forms occurs at B.H.
T. punctularia, B.H., Swithland.
Pseudoterpna pruinata, Gy., Loughborough
Geometra papilionaria, Swithland larvæ on birch, Seal Wood, Gy.

Phorodesma pustulata, Knighton, M.B.
Zonosma punctaria, B.P., Quorn, Loughborough.
Z. linearia, O.W., Gy.
Z. annulata, Quorn, M.B., Gy. Asthena luteata, Leicester dist., Quorn, M.B.
A. sylvata, Gy. Eupisteria obliterata, Quorn, Loughborough.
Acidalia scutulata, Gy., O.W. A. bisetata, Quorn, M.B., O.W.
A. trigemminata, Ansty Lane.
A. immutata, Gy. A. remutata, Loughborough.
A. imitaria, Gy. A. aversata v. spoliata, melanic form gen. dist.
A. emarginata, Quorn.
Timandra amataria, gen. dist.
Bapta temarata, M.B., Gy., O.W.
Macaria alternata, B.H.
M. liturata, M.B., B.H.
Aspilates ochrearia, Gy.
Abraxas ulmaria, various woods.
Ligdia adustata, Loughborough.
Lomaspilis marginata, B.W., B.H., B.P.
Pachynemia hippocastanaria, Quorn.
Hybernia rupicapraria, gen. dist;
H. leucophearia, gen. dist. in woods, melanic forms abundant.
H. aurantiaria, Quorn, Gy.
H. marginaria, common. V. fuscata and other melanic forms abundant.
H. defoliaria, not common, but widely dist.
Cheimatobia boreata, Quorn.
Oporabia filigrammaria, Stoneygate.
Larentia olivata and viridaria, gen. dist. in woods.

Emmelesia albulata, Quorn, Loughborough, abundant.
E. decolorata, widely dist.
E. blandiata, Gy.
Eupithecia venosata, Loughborough.
E. linariata, Quorn.
E. centauriata, Ashby-de-la-Zouch, Gy.
E. pulchellata, B.H., abundant.
E. satyrata, Knighton. E. trisignaria, Cloud Wood.
E. absinthiata, Cloud Wood.
E. minutata, Cloud Wood. E. assimilata, Gy. E. abbreviata, Gy.
E. exiguata, Gy., Knighton. E. sobrinata, Gy. E. togata, Loughborough.
E. rectangulata, common on apples. E. debiliata, B.W., common on bilberry.
Lobophora sexalista, Gy. L. halterata, B.H., O.W., Gy.
L. viretata, Gy. L. carpinata, B.H.
Thera simulata, M.B.
T. firmata, Quorn, M.B.
Hysipetes trifasciata, Swithland, Gy. H. sordidata, bilberry forms, B.W.
Melanthia bicolorata, B.P., Knighton, Loughborough.
M. ocellata, gen. dist. M. albicillata, various woods.
Melanippe procellata, Quorn.
M. unangulata, Loughborough, Gy. M. rivata, B.H. M. galiata, Stoneygate.
Anticlea rubidata, badiata and nigrofasciaria, gen. dist.
Camtogramma fluviata, Gy. B.P
Phibalaptryx vittata, Loughborough, Aylestone, Knighton.

P. vitalbata, Stoneygate.
Scotosia certata, Loughborough, Quorn, Wigston.
S. undulata, Gy., Buddon, larvæ on bilberry.
S. vetulata, Evington, Glen Parva.
S. rhamnata, Evington.
Cidaria siterata, Gy. C. miata, Loughborough, M.B.
C. picata, Wigston, Gy. C. corylata, O.W.
C. suffumata, O.W., Knighton.
C. populata, B.W. Pelurga comitata, Leicester, &c.
Anaitis plagiata, B.W., Cloud Wood, &c.
Chesias spartiata, Loughborough.

CLASSIFIED BIBLIOGRAPHY OF PRINCIPAL WORKS ON THE GEOLOGY, BOTANY, PALÆONTOLOGY, ZOOLOGY, AND ARCHÆOLOGY OF LEICESTERSHIRE.

Compiled by A. R. HORWOOD, *Sub-Curator, Leicester Corporation Museum.*

*GEOLOGY.

GENERAL.

1795—1815.

Nichols, J.—The History and Antiquities of the County of Leicester, 4 vols. [Contains also articles on the Botany, Zoology, and Archæology of Leicestershire.].

1838.

Jukes, J. B.—A Popular Sketch of the Geology of the County of Leicester. [Analyst, vol. viii., p. 1.]

1842.

Allsop, C.—Brief Account of the Geological Visit of Professors Sedgwick, Airy, and Whewell to Charnwood Forest. [In Potter's Charnwood Forest].

Jukes, J. B., and others.—Appendix on the Geology of Leicestershire in Potter's Charnwood.

1846.

Coleman, Rev. W. H.—Sketch of the Geology of Leicestershire in White's Directory of the County, revised and enlarged in 1863 edition.

1860.

Aveline, W. T., and *H. H. Howell.*—The Geology of Part of Leicestershire. [Description of Quarter Sheet 63 S.E., Mem. Geol. Surv.].

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* Only those works specifically referring to Leicestershire, with some few exceptions, have been included, but there are many others which refer incidentally to the Geology and Natural History of the county. A complete Bibliography on works on the Geology and Palæontology, based on the lists prepared by Mr. W. Whitaker, will be found in the Geol. Survey Memoir, 1900, pp. 70-96.

1863.

Mosley, Sir Oswald, and *E. Brown.*—The Natural History of Tutbury. [Mineralogy and Geology by E. Brown, also Botany and Natural History].

1866.

Ansted, Prof. D. T.—Physical Geography and Geology of the County of Leicester.

1874.

Plant, J.—Geology of Leicestershire. [Rep. Leicester Lit. and Phil. Soc., pp. 37-41].

1875.

Judd, J. W.—The Geology of Rutland, and the parts of Lincoln, Leicester, Northampton, Huntingdon, and Cambridge included in Sheet 64, Mem. Geol. Surv.

Plant, J.—Geology of Leicestershire. [Rep. Leic. Lit. and Phil. Soc., pp. 42-46].

1877.

Harrison, W. J.—A Sketch of the Geology of Leicestershire and Rutland, illustrated.

1885.

Browne, A. J. Jukes.—The Geology of the South-West of Lincolnshire, with parts of Leicestershire and Nottinghamshire. [Explanation of Sheet 70, Mem. Geol. Surv.].

1887.

Paul, J. D.—Shearsby, the Cheltenham of Leicestershire. [Trans. Leic. Lit. and Phil. Soc.].

1893.

Browne, M.—A Contribution to the History of the Geology of the Borough of Leicester. [Trans. Leic. Lit. and Phil. Soc.].

Paul, J. D.—Boring at Knighton Co-operative Shoe Works. [Ibid].

1899.

Strangways, C. Fox.—Excursions to Burrough-on-the-Hill; Melbourne and Repton; Swadlincote, Ticknall, and Melbourne; and Nuneaton and Atherstone. [Trans. Leic. Lit. and Phil. Soc.].

1900.

Strangways, C. Fox.—Excursions to Atherstone and Polesworth; Ashby-de-la-Zouch and Mel-

bourne; Ashby-de-la-Zouch, Measham, Swadlincote and Burton; Tilton and neighbourhood; Wigston and Kilby. [Trans. Leic. Lit. and Phil. Soc.].

Strangways and *Watts, Prof. W. W.*—The Geology of the country between Atherstone and Charnwood Forest. [Explanation of Sheet 155, Mem. Geol. Surv.].

1901.

Strangways, C. Fox.—Excursions to Aylestone and Glen Parva; East Norton and Hallaton; East Leake and Kegworth; Barrow and Mountsorrel; Netherseal Colliery. [Trans. Leic. Lit. and Phil. Soc.].

1902.

Browne, M.—The Geology of the Beaumont Leys Estate. [Trans. Leic. Lit. and Phil. Soc.].

Keay, W.—The Geological Economics of Leicestershire. [Ibid].

Strangways, C. Fox.—Excursions to Belgrave and Thurmaston; Charnwood Forest (in collaboration with Prof. W. W. Watts), Thrussington and Frisby; Narborough, Enderby, 1903, and Croft. [Trans. Leic. Lit. and Phil. Soc.].

Strangways, C. Fox.—The Geology of the Country near Leicester. [Explanation of Sheet 156, Mem. Geol. Surv.].

1904.

Anon.—Excursions to Aylestone and Blaby; Kegworth, Castle Donington, and Melbourne; Charnwood Forest, neighbourhood of Woodhouse, Markfield, Copt Oak, &c., Whitwick, The Oaks, Warren Hill, &c., Blackbrook, &c. [Trans, Leic. Lit. and Phil. Soc.].

1905.

Anon.—Excursions to Burrow and Tilton; East Norton and Hallaton; Tilton and neighbourhood. [Trans. Leic. Lit. and Phil. Soc.].

Nuttall, Mrs. G. Clarke.—Guide to Leicester and Neighbourhood. [Articles on Geology, Botany, Fossil Plants, &c.].

Strangways, C. Fox and *Prof. W. W. Watts.*—The Geology of the Country between Derby, Burton-on-Trent, Ashby-de-la-Zouch, and Loughborough. [Explanation of Sheet 141, Mem. Geol. Surv.].

The following maps and sections,* published by the Geological Survey, refer to Leicestershire, either wholly or in part :—

Maps.—Scale, 1 inch to a mile.

Quarter Sheet 53 N.E. *W. T. Aveline* and *H. H. Howell*, 1859.
" 62 N.E. *H. H. Howell*, 1856.
" 63 N.W. *H. H. Howell* and *E. Hull*, 1855.
" 63 N.E. *H. H. Howell*, 1855.
" 63 S.W. *H. H. Howell*, 1855, new edition, *A. Strahan*, 1886.
" 63 S.E. *W. T. Aveline* and *H. H. Howell*, 1859.
Sheet 64. *J. W. Judd*, *W. H. Holloway*, and *S. B. J. Skertchley*, 1872.
" 70. *W. H. Holloway*, 1886.
Quarter Sheet 71 S.W. *E. Hull*, 1855.
" 71 S.E. *E. Hull*, 1855.
Sheet 155 N.S. *C. Fox-Strangways* and *Prof. W. W. Watts*, 1900.
" 156 N.S. Ditto, 1903.
" 141 N.S. Ditto, 1905.

Horizontal Sections.—Scale, 6in. to 1 mile.

Sheet 46. No. 1, Repton to Ticknall, *E. Hull*; No. 2, Nailstone to Barrow-on-Soar, *H. H. Howell*, 1858.
" 48. Lazy Hill to Wysall, *H. H. Howell*, 1858.
" 49. No. 1, Barr Beacon to Radcliffe Culey, *H. H. Howell*, 1858; No. 2, Bodymoor Heath to Chellaston, *H. H. Howell*, 1858.
" 52. No. 1, Newton Solney to Measham Hall; No. 2, Linton to N. part of Charnwood Forest, *E. Hull*, 1858.
" 122. Section from Three Shire Stone to River Eye, west of Melton Mowbray, *W. H. Penning* and *W. H. Holloway*, 1879.
" 124. Section from Buddon Wood across Mountsorrel to the Fenlands, *W. H. Holloway* and *W. H. Penning*, 1887.

* These are to be obtained locally from Messrs. W. H. Smith and Sons, Market Place, Leicester.

Vertical Sections.—Scale, 40ft. to 1in.

Sheet 19. Leics. Coalfield, Eastern or Cole Orton District, *E. Hull*, 1856.

,, 20. Leics. Coalfield, Western or Moira District, *E. Hull*, 1857.

See also Annual Report of the Geological Survey for 1897, and Summary of Progress of the Geological Survey, 1897 to present date.

PRE-CAMBRIAN.

1857.

Anon [*J. B. Jukes*].—Geology of Charnwood Forest, [In Allen's Illustrated Handbook to Charnwood Forest].

1863.

Ansted, Prof. D. T.—On the Metamorphic Origin of the Porphyritic Rocks of Charnwood Forest. [Geologist].

1865.

Mackintosh, D.—Notes on Charnwood Forest. [Geol. Mag.].

Plant, J.—Are the [Slate] Rocks of Charnwood Forest Laurentian? [Geol. Mag.].

1868.

Mott, F. T.—Charnwood Forest . . . its Natural Curiosities, &c. [Geol. Map and Notes].

1875.

Hudleston, W. H.—Excursion to Charnwood Forest. [Proc. Geol. Assoc.].

1876.

Bonney, Rev. T. G.—The Age of the Rocks of Charnwood Forest. [Nature].

Green, A. H.—The Age of the Rocks of Charnwood Forest. [Ibid.]

Harrison, W. J.—The Age of the Rocks of Charnwood Forest. [Ibid].

Hull, Prof. E.—The Age of the Rocks of Charnwood Forest. [Ibid].

1877.

Harrison, W. J.—The Geology of Charnwood Forest. [Proc. Dudley. Geol. Soc.].

Hill, Rev. E., and [*Prof.*] *T. G. Bonney.*—The Pre-carboniferous Rocks of Charnwood Forest. [Q.J.G.S., Pt. I. 1878, Pt. II. ibid, 1880, Pt. III. ibid].

Hutchinson, Rev. T. N.—Geology of Charnwood Forest. [Rep. Rugby Sch. Nat. Hist. Soc.].
Plant, J.—The Rocks of Charnwood Forest. [Nature].

1879.

Allport, S.—On the Rocks of Brazil Wood, Charnwood Forest. [Geol. Mag].
Allport, S., and *W. J. Harrison.*—On the rocks of Brazil Wood, Charnwood Forest. [Mid. Nat.].

1880.

Bonney, Prof. T. G.—The Older Rocks of Charnwood Forest. [Mid. Nat.].

1882.

Berry, E. E.—Analyses of Five Rocks from the Charnwood Forest District. [Q.J.G.S.].

1885.

Harrison, W. J.—On the Pre-Carboniferous Floor of the Midlands. [Mid. Nat.].
Mott, F. T.—The Geological History of Charnwood Forest. [Chesterfield Mid. Inst. Eng.].

1891.

Hill, E. and *Prof. T. G. Bonney.*—On the North-West Region of Charnwood Forest, with other notes. [Q.J.G.S.].

1895.

Callaway, C.—Prof. Hull and the Cambrian Age of the Charnwood Clastics. [Geol. Mag.].
Watts, W. W.—Notes on Some Specimens Collected in the Trench, Brazil Wood, Charnwood Forest. [Trans. Leic. Lit. and Phil. Soc.].

1896.

Watts, W. W.—Notes on the Ancient Rocks of Charnwood Forest. [Geol. Mag.].

1900.

Watts, Prof. W. W.—Excursion to Charnwood Forest. [Trans. Leic. Lit. and Phil. Soc.].

1903.

Bennett, Dr. F. W.—The Charnwood Forest Rocks. [Ibid].

1905.

Watts, Prof. W. W.—The Buried Landscape of Charnwood Forest. [Ibid].

Bennett, Dr. F. W.—The Buck Hill Grit. [Ibid].
Stracey, Dr. B., and *Dr. F. W. Bennett.*—The Felsitic Agglomerate of the Charnwood Forest Rocks. [Trans. Leic. Lit. and Phil. Soc.].

1907.

Keay, W., and *M. Gimson.*—The relation of the Keuper Marl to the Charnian Rocks at Bardon Hill. [Ibid].
Stracey, Dr. B., and *Dr. F. W. Bennett.*—The Felsitic Agglomerate of the Charnwood Forest Rocks. [Ibid].

INTRUSIVE—IGNEOUS.

1863.

Sorby, H. C.—On the Microscopical Structure of Mountsorrel Syenite, artificially fused and cooled slowly. [Geol. Mag.].

1866.

Foster, C. Le N.—On the occurrence of Molybdenite in Leicestershire. [Geol. Mag.].

1868.

Powell, Prof. Baden.—On the Igneous Rocks of Charnwood Forest and its Neighbourhood. [Ibid].

1880.

Harrison, W. J.—The Syenites of South Leicestershire. [Mid. Nat.] and 1884.

1882.

Paul, J. D.—Report of the Geological Section (Croft Quarry). [Trans. Leic. Lit. and Phil. Soc.]

1888.

Teall, J. J. H.—British Petrography, with special reference to Igneous Rocks (various references).

1891.

Bonney, T. G.—Note on a Contact Structure in the Syenite of Bradgate. [Q.J.G.S.].

1895.

Bonney, T. G.—Supplementary note on the Narborough District (Leicestershire). [Q.J.G.S.].

1899.

Watts, Prof. W. W.—Note on the Surface of the Mountsorrel Granite (and in 1900). [Trans. Leic. Lit. and Phil. Soc.].

CARBONIFEROUS.

1833.

Holdsworth, J.—Notice of a Discovery of Coal-measures and Fossil Fruits at Billesdon Coplow, in Leicestershire. [Phil. Mag.].

1834.

Mammatt, E.—A Collection of Geological Facts and Practical Observations, intended to elucidate the formation of the Ashby Coalfield. [Map and sections with 102 plates of fossils].

1859.

Howell, H. H.—The Geology of The Warwickshire Coalfield. [Mem. Geol. Surv.].

1860.

Hull, E.—On the Geology of the Leicestershire Coalfield and the Country around Ashby-de-la-Zouch. [Ibid].

1862.

Fowler, George.—On the Method adopted in working the Main Seam of Coal at Moira, in Leicestershire, particularly with reference to Spontaneous Combustion. [Trans. N. Inst. Min. Eng.].

1868.

Lewis, G.—On the Cole Orton District of the Leicestershire Coalfield. [Trans. S.W. Inst. Eng].

1877.

Harrison, Jonathan.—The South-East Leicestershire Coalfield and the Geological Formations of the Surrounding Country. [Trans. Chesterfield Mid. Inst. Eng.].

Harrison, W. J.—The Leicestershire Coalfield. [Proc. Dudley Geol. Soc.].

1878.

Grayston, F. A.—The Correlation of the Leicestershire, Warwickshire, South Staffordshire and Shropshire Coalfields. [Tamworth Nat. Hist. Soc.].

1884.

Paul, J. D.—The Cores, from a boring made near Evington. [Trans. Leic. Lit. and Phil. Soc.].

1885.

Gresley, W. S.—Some Inaccuracies upon the

Geological Survey Maps and Sections of the Leicestershire Coalfield. [Mid. Nat.].

Gresley, W. S.—On the occurrence of Quartzite Boulders in a Coal Seam in Leicestershire. [Geol. Mag.].

1886.

Bragge, G. S.—The Geology of the South Derbyshire and East Leicestershire Coalfields. [Trans. Chesterfield Mid. Inst. Eng.].

1887.

Gresley, W. S.—Notes on the Formation of Coal Seams, as suggested by evidence collected chiefly in Leicestershire and South Derbyshire Coalfields. [Q.J.G.S.].

1888.

Gresley, W. S.—On the occurrence of Boulders and Pebbles in the Coal Measures. [Trans. Manch. Geol. Soc.].

Gresley, W. S.—The occurrence of Variegated Coal-measures, Altered Ironstones, &c , at Swadlincote, Derbyshire. [Geol. Mag.].

1892.

Gresley, W. S.—A typical section taken in detail of the "Main Coal" of the Moira or Western Division of the Leicestershire and South Derbyshire Coalfield. [Trans. Manch. Geol Soc.].

Gresley, W. S.—Geological History of the Rawdon and the Boothorpe Faults in the Leicestershire Coalfield. [Trans. Chest. Inst. Eng.].

1895.

Hull, E.—The Leicestershire Coalfield. [Coll. Guard.].

1896.

Gresley, W. S.—Remarks on some interesting Coal-measure Sections in the Leicestershire and South Derbyshire Coalfield. [Trans. Manch. Geol. Soc.].

1897.

Binns, G. J. and *G. Barrow.*—On the occurrence of certain Minerals at Netherseal Colliery, Leicestershire. [Coll. Guard.].

Binns, G. J., Strangways C. Fox, and *W. W. Watts.*—Notes on Borings at Netherseal, Ashby-de-la-Zouch, Leicestershire.

PERMIAN.

1885.

Gresley, W. S.—On certain Fossiliferous Nodules and Fragments of Hæmatite (sometimes Magnetite) from the so-called Permian Breccias of Leicestershire and South Derbyshire. [Q.J.G.S.].

1886.

Gresley, W. S.—On the occurrence of Fossiliferous Hæmatite Nodules in the Permian Breccia of Leicestershire, together with some account of their economic value. [Mid. Nat.].

1889.

Brown, H. T.—The Permian Rocks of the Leicestershire Coalfield. [Q.J.G.S.].

1892.

Bonney, T. G.—On Specimens from the Permian Breccia of Leicestershire, collected by W. S. Gresley. [Mid. Nat.].

TRIAS.

BUNTER.

1879.

Harrison, W. J.—Fossiliferous Bunter Pebbles in the Drift (Countesthorpe). [Mid. Nat.].

KEUPER.

1850.

Plant, John.—Notice of the Discovery of Beds of Keuper Sandstone containing Zoophytes in the vicinity of Leicester. [Rep. Brit. Assoc.].

1856.

Plant, James.—On the Upper Keuper Sandstone (included in the new Red Marls) and its Fossils at Leicester. [Q.J.G.S.].

1868.

Maw, G.—The Trias of Charnwood Forest. [Geol. Mag.].

1869.

Hull, E.—The Triassic and Permian Rocks of the Midland Counties of England. [Mem. Geol. Surv.].

Plant, J.—On the so-called Pseudomorphous Crystals of Chloride of Sodium, found in the Upper

Triassic Rocks of Leicestershire, and the adjoining Counties. [Geol. Mag.].

RHÆTIC.

1875.

Brodie, Rev. P. B.—On the Lower Lias at Eatington and Kineton, and on the Rhætics in that neighbourhood, and their further extension in Leicestershire, Nottinghamshire, Lincolnshire, Yorkshire, and Cumberland. [Proc. Warw. Nat. Hist. Soc.].

1876.

Brodie, Rev. P. B.—On the further extension of the Rhætic or Penarth Beds in Warwickshire, Leicestershire, Nottinghamshire, Yorkshire and Cumberland; and on the occurrence of some supposed remains of a new Labyrinthodont, and a new radiate therein. [Rep. Brit. Assoc.].

Harrison, W. J.—On the occurrence of Rhætic Beds in Leicestershire. [Q.J.G.S.].

1884.

Quilter, H. E.—The Rhætic Beds of the Spinney Hills. [Trans. Leic. Lit. and Phil. Soc.].

Wilson, E., and *H. E. Quilter.*—The Rhætic Section at Wigston, Leicestershire. [Geol. Mag.].

1885.

Quilter, H. E.—The Rhætic Beds as exposed at Wigston. [Trans. Leic. Lit. and Phil. Soc.].

1889.

Quilter, H. E.—The Rhætics of Leicestershire, with notes on Fossil Fish-remains by A. Smith Woodward. [Trans. Leic. Lit. and Phil. Soc.].

LIAS.

1857.

Brodie, Rev. P. B.—Remarks on the Lias of Barrow, in Leicestershire, compared with the lower part of that formation in Gloucestershire, Worcestershire, and Warwickshire. [Proc. Cotteswold Field Cl.].

1867.

Brodie, Rev. P. B.—On the Correlation of the Lower Lias at Barrow-on-Soar, in Leicestershire, with the same strata in Warwickshire, Worcestershire,

and Gloucestershire; and on the occurrence of the remains of Insects at Barrow, in Yorkshire. [Rep. Brit. Assoc., &c.].

1881.

Quilter, H. E.—Exposure of the Middle Series of the Bucklandi Beds in Leicestershire. [Mid. Nat.].

1883.

Paul, J. D.—On a section exposed in the Great Northern Railway, near Thurnby and Scraptoft. [Trans. Leic. Lit. and Phil. Soc.].

Quilter, H. E.—On an exposure of Lower Lias on the Crown Hill in a pit of the Evington Lime Company. [Ibid].

1884.

Marriott, J.—The beds exposed in the railway cutting at Slawston Hill. [Ibid].

Moore, C. A.—The Railway Cutting north of Market Harborough Station. [Ibid].

Quilter, H. E.—The Cutting near Market Harborough Station. [Ibid].

1885.

Wilson, E.—The Lias Marlstone of Leicestershire as a source of Iron. [Mid. Nat.].

1886.

Bates, E. F., and *L. Hodges.*—Notes on a recent exposure of the Lower Lias and Rhætics in the Spinney Hills. [Trans. Leic. Lit. and Phil. Soc.].

Quilter, H. E.—The Lower Lias of Leicestershire. [Geol. Mag.].

1889.

Wilson, E., and *W. D. Crick.*—The Lias Marlstone of Tilton, Leicestershire. [Geol. Mag.].

1893.

Woodward. H. B.—The Jurassic Rocks of Britain, vol. III.; The Lias of England and Wales (Yorkshire excepted). [Mem. Geol. Surv].

LOWER OOLITE.

1894.

Woodward, H. B.—The Jurassic Rocks of Britain, vol. iv.; The Lower Oolite Rocks of England (Yorkshire excepted). [Mem. Geol. Surv.].

MIDDLE AND UPPER OOLITE.

1895.

Woodward, H. B.—The Jurassic Rocks of Britain, vol. iv., vol. v.; The Middle and Upper Oolitic Rocks of England (Yorkshire excepted). [Mem. Geol. Surv.].

GLACIAL, PLEISTOCENE, AND RECENT.

1870.

Lucy, W. C.—Notes upon the occurrence of Post-Pliocene Drift of Charnwood Forest. [Geol. Mag.]

Musgrave, R. M.—On the Drift Gravel of Lutterworth, Kilworth, &c. [Proc. Warw. Field Cl.].

1874.

Crosskey, Rev. H. W.—First Report of the Committee appointed for the purpose of recording the position, height above the sea, &c., of the erratic blocks of England and Wales. [Rep. Brit. Assoc.]. Also Reports for years 1876, 1878, 1879, 1881 to 1884, and 1887.

1887.

Tuckwell, Rev. W.—On the Glacial Erratics of Leicestershire and Warwickshire. [Rep. Brit. Assoc.].

1901.

Paul, J. D.—The Soar Valley in Glacial Times. [Trans. Leic. Lit. and Phil. Soc.].

1902.

Paul, J. D.—The Drift in the Soar Valley. [Ibid].

WATER SUPPLY.

1876, &c.

De Rance, C.E.—First Report of the Committee appointed for the purpose of investigating the circulation of underground waters. [Rep. Brit. Assoc.]. Also for years 1876 to 1884, 1886, 1888, 1890, 1891, 1893.

PALÆOBOTANY.

1811—1813.

Parkinson, J.—Organic remains of a Former World, 3 vols.

1834.

Mammatt, E.—A collection of Geological Facts and Practical Observations, intended to elucidate the formation of the Ashby Coalfield.

1854.

Mantell, G. D.—The Medals of Creation, 2 vols.

1887.

Gresley, W. S.—Notes on the Formation of Coal Seams, as suggested by evidence collected chiefly in the Leicestershire and South Derbyshire Coalfield. [Reprinted from the Q.J.G.S., with figures].

1889.

Gresley, W. S.—Note on Further Discoveries of Stigmaria (? Ficoides) and their bearing upon the question of the Formation of Coal Beds. [Mid. Nat.].

1898.

Gresley, W. S.—The Formation of Coal. [Jour. Brit. Soc. Min. Students].

1904.

Horwood, A. R.—Preliminary contribution to the Fossil Flora of the Leicestershire Coalfield. [Trans. Leic. Lit. and Phil. Soc., p. 145]. Not printed at author's request.

1905.

Anon (*A. R. Horwood*).—Fossil Plants (summary of occurrence in Leicestershire) in a Guide to Leicester, edited by Mrs. Gertrude Clarke Nuttall, B.Sc.

BOTANY.

1724.

Ray.—Raii synopsis methodica stirpium Britannicarum, 3rd edition (*Alectoria jubata*, "Charley Forest.")

1747.

Pulteney, Dr. R.—MS. Catalogue of Plants near Loughborough, with coloured drawings (in Leicester Museum Library); another 1749 (in Library of the Linnean Society).

1759.

Pulteney, Dr. R.—The Rarer Plants of Leicestershire. [Phil. Trans.].

1763.

Martyn, T.—Plantæ cantabrigienses. [Appendix].

1789.

Gough.—In Camden's "Britannia" (List of Plants).

1795—1815.

Crabbe, Rev. G., and *Dr. R. Pulteney*—In Nichol's History of Leicestershire (List of Plants).

1801.

Withering, W.—A systematic arrangement of British Plants, 4th edition.

1805.

Turner and *Dillwyn.*—The Botanists' Guide.

1817—20.

Purton, Dr.—The Midland Flora.

1831.

Combe.—History of Bradgate Park, List of Plants by Rev. A. Bloxam.

Curtis, Rev. J.—History of Leicestershire, List of Plants by Messrs. Hands, Paget and Parkinson.

1835-7.

Watson, H. C.—The New Botanist's Guide.

1842.

Potter, T. R.—The History of Charnwood Forest, with articles on Botany, &c., by the Revs. A. Bloxam and Churchill Babington.

1850.

Kirby, M. (*Miss*).—A Flora of Leicestershire.

1858.

Spanton, J.—A Companion to Charnwood Forest.

1860.

Berkeley, Rev. J. M.—Outlines of British Fungology.

1863.

Anon (*Coleman, Rev. W. H.*)—In White's Directory of the Counties of Leicester and Rutland. Also in 1846, and revised by J. Britten, 1876.

Mosley, Sir Oswald, and *E. Brown.*—The Natural History of Tutbury.

1868.

Mott, F. T.—Charnwood Forest, 3rd edition. List of rarer plants and Edible Fungi by F. T. Mott.

1871.

Cooke, Dr. M. C.—Handbook of British Fungi. List of Fungi contributed by Rev. A. Bloxam.

1879.

Leighton, Rev. W. A.—The Lichen-Flora of Great Britain, Ireland, and the Channel Islands, 3rd edition.

1880-6.

Groves, H., and *G. Groves.*—Notes on British Characeæ. (A few plants from Leicestershire, by F. T. Mott).

1885.

Mott, F. T.—Leicestershire forms of *Capsella bursa pastoris.* [Mid. Nat. pp. 217—220].

1886.

Druce, G. C.—The Flora of Leicestershire: A review. [Mid. Nat].

Mott, F. T., T. Carter, E. F. Cooper, C. W. Cooper, and *J. E. M. Finch.*—The Flora of Leicestershire, including the Cryptogams. [With maps of the County].

Mott, F. T.—Campanulas of Leicestershire. [Trans. Leic. Lit. and Phil. Soc., p. 24].

1887.

Mott, F. T.—The Wild Geraniums of Leicestershire. [Ibid, pp. 14—16].

1888.

Mott, F. T.—The Native Trees of Leicestershire. [Ibid, pp. 20—23].

Mott, F. T.—The Ferns of Leicestershire. [Ibid, pp. 25—28].

1889.

Carter, T.—Phanerogamous parasites of Leicestershire. [Ibid, pp. 16 to 20].

1890.

Finch, Dr.—The Grasses of Leicestershire. [Ibid. p. 205-6].

Mott, F. T.—The Native Bulbs of Leicestershire. [Ibid, pp. 68—71].

Mott, F. T.—The Leicestershire Cruciferæ. [Ibid, p.77].

Mott, F. T.—On the native Leguminosæ of Leicestershire. [Ibid, p. 176].

1892.

Cooper, E. F.—The Leicestershire Pond Weeds (Potamogetons). [Ibid, p. 556].

Hottinger, Miss.—The Abbey Park. [Ibid, pp. 501 to 509].

1894.

Carter, T.—The County Flora (p.376).

Cooper, E. F.—Notes on the Leicestershire Potamogetons. [Ibid, pp. 391—8, Plate].

Mott, F. T.—The Umbelliferæ of Leicestershire. [Ibid, p. 389].

1895.

Crombie, Rev. J. M.—A monograph of Lichens found in Britain, being a descriptive catalogue of the species in the Herbarium of the British Museum. Pt. I.

Mott, F. T.—The Leicestershire Hepaticæ. [Trans. Leic. Lit. and Phil. Soc., pp. 472—6].

Preston, Rev. T. A.—The Flora of the Cropstone Reservoir. [Ibid, pp. 430—442].

1898.

Mott, F. T.—The Shrubs of Leicestershire. [Ibid, pp. 483-4].

Mott, F. T.—The Native Undershrubs of Leicestershire. [Ibid, pp. 39-40].

1899.

Lakin, Dr. C.—Some Medicinal Plants of Leicestershire. [Ibid, pp. 176—182].

Mott, F. T.—The Wild Fruits of Leicestershire. [Ibid, pp. 229—236].

Vice, Dr. W. A.—Work for the Field Botanist in Leicestershire. [Ibid, p. 142],

1900.

Jackson, A. B.—Notes on the Botany of the Beaumont Leys Sewage Farm. [Ibid, pp. 495—502].

Jackson, A. B.—Botany of the Sewage Farm. [Ibid, p. 527].

Preston, Rev. T. A.—Additions to the Flora of Leicestershire (Herbarium Notes). [Ibid, p. 375].

Preston, Rev. T. A.—Notes respecting the Flora of the County since 1885. [Ibid, pp. 411—9].

1901.

Bell, W.—Leicestershire Ferns. [Ibid, p. 691].

Bell, W.—Flora of Groby Pool. [Ibid, pp. 47-8].

Preston, Rev. T. A.—The Flora of Leicestershire. [Ibid, pp. 609—613].

1902.

Bell, W.—Leicestershire Ferns (2nd portion). [Ibid, p. 204].

Jackson, A. B.—Notes on the Kirby Herbarium. [Ibid, pp. 213—5].

Preston, Rev. T. A.—Report of the Herbarium. [Ibid, pp. 205-6].

1903.

Anon (A. R. Horwood).—A catalogue of Leicestershire Mosses and Hepaticæ. [Printed for private circulation].

Bell, W.—Saltby Heath. [Trans. Leic. Lit. and Phil. Soc., pp. 142—5].

Preston, Rev. T. A.—On the Progress of the Herbarium during the past year. [Ibid, pp. 191—3].

1904.

Horwood, A. R.—Leicestershire Lichens (1886—1903). [Journ. Bot., Feb., 1904, pp. 47—49].

Jackson, A. B.—Notes on Leicestershire Eyebrights. [Trans. Leicr. Lit. and Phil. Soc., pp. 116—120].

Jackson, A. B.—Leicestershire Plant Notes, 1886—1904. [Journ. Bot., pp. 337—349].

1905.

Anon (W. Bell).—The Flora of Leicestershire, in "A Guide to Leicester and Neighbourhood," by Mrs. G. Clarke Nuttall, B.Sc. [pp. 185—7].

Jackson, A. B.—Leicestershire Mosses. [Journ. Bot., pp. 225—231].

1906.

Jackson, A. B.—Leicestershire Rubi. [Journ. of Bot., Aug., 1906].

PALÆOZOOLOGY.

GENERAL.

1812—1846.

Sowerby, J.—continued by *J. de C. Sowerby.*—The Mineral Conchology of Great Britain.

1843.

Morris, J.—A Catalogue of British Fossils, and 2nd edition, 1854.

1865.

Huxley, T. H., and *R. Etheridge.*—Catalogue of Fossils in the Museum of Practical Geology, Jermyn Street.

1866.

Ansted, Prof. D. T.—Physical Geography and Geology of the County of Leicester.

1869.

Molyneux, W.—Burton-on-Trent: Its History, its Waters, and its Breweries.

1875.

Plant, J.—Geology of Leicestershire. [Rep. Leic. Lit. and Phil. Soc.].

See also for palæontological lists, articles on the Geology of the County, by Nichols (1795—1815), Coleman (1846 and 1863), Aveline and Howell (1860), Judd (1875), Harrison (1877), Jukes-Browne (1885), Browne (1893), Fox-Strangways (1900, 1903, 1905, Mem. Geol. Survey).

INVERTEBRATA.

PROTOZOA.

1860.

Jones, Prof. T. R., and *W. Kitchen Parker.*—On some Fossil Foraminifera from Chellaston, near Derby. [Q.J.G.S.].

1880.

Wilson, E.—On the occurrence of Foraminifera in the Carboniferous Limestone of Derbyshire. [Mid. Nat.].

1886.

Quilter, H. E.—The Lower Lias of Leicestershire (List of Liassic Foraminifera found by Wilson). [Geol. Mag.].

COELENTERATA.

1850.

Plant, J.—Notice of the Discovery of Beds of Keuper Sandstone containing Zoophytes in the vicinity of Leicester (*Gorgonia keuperi*, probably inorganic). [Rep. Brit. Assoc.].

1849—1854.

Edwards, Milne, and *J. Haime.*—The Fossil Corals. [Mon. Pal. Soc.].

CRUSTACEA.

1849.

McCoy, F.—On the Classification of some British Fossil Crustacea. [Ann. Mag. Nat. Hist.].

1862.

Jones, Prof. T. R.—A monograph of the Fossil Estheriæ. [Mon. Pal. Soc.].

1867.

Brodie, Rev. P. B.—On the Correlation of the Lower Lias at Barrow-on-Soar, &c. [Ann. Mag. Nat. Hist.].

1868.

Woodward, H.—Third Report on the Structure and Classification of the Fossil Crustacea. [Rep. Brit. Assoc.].

1877.

Woodward, H.—Catalogue of the British Fossil Crustacea in the British Museum.

1878.

Woodward, Dr. H.—On a new and undescribed Macrouran Decapod Crustacean from the Lower Lias, Barrow-on-Soar, Leicestershire. [Geol. Mag.].

INSECTA.

1874.

Brodie, Rev. P. B.—The Distribution and Correlation of Fossil Insects, and the supposed occurrence of Lepidoptera and Arachnida in British and Foreign Strata, chiefly in the Secondary Rocks. [Proc. Warw. Field Club].

1892.

Woodward, H.—On a Neuropterous Insect from the Lower Lias, Barrow-on-Soar, Leicestershire. [Geol. Mag.].

MOLLUSCA.

1863—9.

Phillips, Prof.—Monograph of British Belemnites. [Mon. Pal. Soc.].

1878.

Molyneux, W.—On the occurrence of *Aviculopecten* and other Marine Shells in deposits associated with Seams of Coal containing Salt Water, in the Ashby Coalfield. [Rep. Brit. Assoc.].

1878—1885.

Wright, Dr.—Monograph of the Lias Ammonites. [Mon. Pal. Soc.].

1887.

Wilson, E.—British Liassic Gasteropoda. [Geol Mag.].

1892.

Hudleston, W. H., and *E. Wilson.*—A Catalogue of British Jurassic Gasteropoda.

1898.

Crick, G. C.—List of Types and Figured Specimens of Cephalopoda in the British Museum.

ECHINODERMATA.

1880.

Harrison, W. J.—A Starfish Bed in the Rhætic Formation. [Sci. Gossip].

BRACHIOPODA.

Davidson, T.—A Monograph of the British Fossil Brachiopoda, Pt. V. The Carboniferous Brachiopoda. [Mon. Pal. Soc.].

POLYZOA.

1896.

Gregory, Dr. J. W.—Catalogue of the Fossil Bryozoa in the British Museum, The Jurassic Bryozoa.

VERTEBRATA.

GENERAL.

1889.

Browne, M.—The Vertebrate Animals of Leicestershire and Rutland.

1890.

Woodward, A. S., and *C. D. Sherborn.*—A Catalogue of British Fossil Vertebrata.

1891.

Woodward, A. S., and *C. D. Sherborn.*—A Catalogue of British Fossil Vertebrata, supplement for 1890. [Geol. Mag.].

PISCES.

1781.

Jones, W.—Physiological Disquisitions; or Discourses on Natural Philosophy of the Elements.

1854.

Egerton, Sir P. de M. G.—On some new Genera and Species of Fossil Fishes. [Ann. Mag. Nat. Hist.]

1855.

Egerton, Sir P. de M. G.—*Pycnodus liassicus* from Barrow-on-Soar. [Mem. Geol. Surv.].

1889.

Browne, M.—On a Fossil Fish (*Chondrosteus*) from Barrow-on-Soar, hitherto recorded only from Lyme Regis. [Trans. Leic. Lit. and Phil. Soc.].

Woodward, A. S.—On some remains of Fossil Fishes from the Rhætic Beds of the Spinney Hills. [Ibid].

Woodward, A. S.—Note on a species of *Pholidophorus* from the Rhætic paper shales of Wigston. [Ibid].

1889—1895.

Woodward, A. S.—Catalogue of Fossil Fishes in the British Museum, Nat. Hist.

1890.

Browne, M.—A Supplementary Contribution to the History of the Fossil Fishes of the Rhætics of Leicestershire. [Trans. Leic. Lit. and Phil. Soc.].

Browne, M.—Revision of a Genus of Fossil Fishes, *Dapedius*. [Ibid].

Woodward, A. S.—Notes on some new and little known British Jurassic Fishes. [Geol. Mag.].

Woodward, A. S.—Notes on some Ganoid Fishes from the English Lower Lias. [Ann. Mag. Nat. Hist.].

1891.

Browne, M.—Note upon *Colobodus*, a Genus of Mesozoic Fossil Fishes. [Geol. Mag.].

1892.

Browne, M.—Notes upon the Mesozoic Fossil Fish (*Ceratodus*), and its living representative, *Epiceratodus* (*Ceratodus*) *Forsteri* (Teller), with Exhibition of Palatal and Mandibular Teeth from the Rhætics of Aust Cliff, Gloucestershire, and Spinney Hills, Leicestershire.

REPTILIA.

1837.

Anon.—Abstract of a Paper on the Fossil Ichthyosaurus from Barrow-on-Soar. [Analyst].

1864.

Anon. (*W.D.*).—The Skin of Reptiles preserved in a Fossil State. [Geol. Mag].

1865.

Owen, Prof. R.—Monograph of the Fossil Reptilia of the Liassic Formations, Pt. I. [Pal. Soc.].

1888—1890.

Lydekker, R.—Catalogue of the Fossil Reptilia in the British Museum.

1894.

Browne, M.—On some Vertebrate Remains not hitherto recorded from the Rhætic Beds of Britain. [Rep. Brit. Assoc.].

MAMMALIA.

1807.

Anon.—Account of the finding of the remains of a Bull(?) at Bottesford, near Grantham. [Phil. Mag.].

1859.

Plant, James.—Notice of the occurrence of Mammalian remains in the Valley of the Soar, Leicestershire. [Geologist].

1861.

Drake, F.—Human Remains in the Drift of the Vale of Belvoir. [Ibid].

Drake, F.—Human Remains found with Bones of Extinct Animals in the Vale of Belvoir. [Ibid].

1862.

Mackie, S. J.—Human Bones at Leicester. [Athenæum].

1863.

Drake, F.—Mammoth Remains at Leicester. [Geologist].

Plant, J.—Remains of the Mammoth at Leicester. [Athenæum].

1877—1881.

Adams, A. Leith.—Monograph of the British Fossil Elephants. [Pal. Soc.] and 1879.

ZOOLOGY.

GENERAL.

1863.

Mosley, Sir Oswald, and *E. Brown.*—The Natural History of Tutbury.

1878—1888.

The Midland Naturalist contains many notes on the occurrence of various animals in the county.

1887—1907.

The Transactions of the Leicester Literary and Philosophical Society contain many isolated records relating to the Fauna, besides the papers printed in extenso or in abstract, here classified under their respective headings.

The Zoologist also has many notes and short articles on the county Fauna.

1905.

Anon. (*M. Browne*, in part).—Zoology of Leicestershire, in a Guide to Leicester and Neighbourhood, by Mrs. G. Clarke Nuttall, B.Sc.

ANNELIDA.

1893.

Elliott, O. T.—Earthworms. [Trans. Leic. Lit. and Phil. Soc., pp. 14, 15].

CRUSTACEA.

1903—4.

Scourfield, D. T.—Synopsis of the known species of British Fresh-water Entomostraca. [Journ. Quek. Micr. Club, ser. 2, vol. 8 and 9, 1903-4].

MYRIAPODA.

Quilter, H. E.—The Myriapoda of Leicestershire. [Trans. Leic. Lit. and Phil. Soc., p. 42].

Quilter, H. E.—Centipedes and Millepedes. [Ibid, p. 43].

COLEOPTERA.

1879.

Bates, F.—Midland Entomology. [Mid. Nat., p. 100]

Robson, G.—The Predaceous Water-beetles (Hydradephaga) of Leicestershire. [Mid. Nat., pp. 58—60].

1896.

Bates, F.—The Coleoptera of Bradgate Park. [Trans. Leic. Lit. and Phil. Soc., pp. 170—176].

Donisthorpe, H. St. John.—Notes on a paper on the Coleoptera of the Vale of Belvoir, 1795. [Ibid, pp. 198—200].

1898.

Bouskell, F.—The Coleopterous Fauna of the Leicestershire Reservoirs, and Notes on Collecting in 1897. [Ibid, pp. 491-2]. See Entomologists' Record and Journal of Variation, Jan., 1898.

Donisthorpe, H. St. John.—Notes on the British Longicornes. [Ibid, pp. 25—37].

1901.

Bouskell, F.—The Variation and Distribution of the genus *Aphodius* (Illiger). [Ibid, pp. 571—605].

1904.

Donisthorpe, H. St. John.—Ten years' captures of New British Beetles. [Ibid, pp. 135—143].

1905.

Anon. (*F. Bouskell*).—Coleoptera of Leicestershire in "A Guide to Leicester and Neighbourhood," by Mrs. G. Clarke Nuttall, B.Sc.

Barrow, W. H.—A retrospect of a Season's Collecting Coleoptera, 1904. [Trans. Leic. Lit. and Phil. Soc., pp. 81, 82].

See also articles and notes of various dates in The Entomologist, Entomologists' Monthly Record, and Entomologists' Monthly Magazine.

LEPIDOPTERA.

1867.

Stainton, H. T.—British Butterflies and Moths, 2 vols.

1888.

Rowley, F. R.—The Diurnal Lepidoptera of Leicestershire. [Trans. Leic. Lit. and Phil. Soc., p. 37. 29 species recorded].

1889.

Anon. (Entomological Section).—The Lepidoptera of Burton-on-Trent and Neighbourhood. [Trans. Burton-on-Trent N. Hist. Soc.].

1891.

Bouskell, F., and *C. B. Headly.*—A List of the Macro-Lepidoptera of Leicestershire. [Trans. Leic. Lit. and Phil. Soc., pp. 311—332].

Bouskell, F., and *C. B. Headly.*—A few notes on the distribution and variation of the Leicestershire Macro-Lepidoptera. [Ibid, pp. 365—370].

1892.

Anon. (The Entomological Section).—Lepidoptera of Burton-on-Trent and Neighbourhood. [Trans. Burton-on-Trent N. Hist. Soc.].

1895.

Anon.—Part I. of the Leicestershire Lepidoptera (p. 450), Pt. II., vol. IV., p. 29. [Trans. Leic. Lit. and Phil. Soc.].

1899—1907.

Tutt, J. W.—British Lepidoptera.

1901.

Bouskell, F.—The rarer Lepidoptera of Leicestershire. [Trans. Leic Lit. and Phil. Soc., p. 701].

There are many isolated records in various journals, *e.g.*, The Entomologist, Journal of the Entomological Society of London, Entomologists' Monthly Magazine and Record, The Entomological Magazine, &c.

DIPTERA.

1885.

Vice, Dr. W. A.—Notes on British Syrrphidæ. [Trans. Leic. Lit. and Phil. Soc., pp. 128, 129].

1887.

Quilter, H. E.—The Hessian Fly in Leicestershire. [Trans. Leic. Lit. and Phil. Soc., pp. 27, 28].

ARACHNIDA.

1897.

Chalcraft, G. B.—The Aranidæ (Spiders) of Leicestershire. [pp. 435—7].

MOLLUSCA.

1795—1815.

Crabbe, Rev. J.—In Nichol's History of Leicestershire, Article on Mollusca.

1836.

Bloxam, Rev. A.—British Land and Fresh-water Shells, found in the vicinity of Congerstone, Leicestershire, in 1835-6. [Analyst].

1887.

Mott, F. T.—On Mr. John Plant's Catalogue of Leicestershire Mollusca. [Trans. Leic. Lit. and Phil. Soc., pp. 22, 23.].

Plant, J.—The Land and Fresh-water Mollusca indigenous to Leicestershire, 1850. [Ibid, pp. 24—33].

1888.

Quilter, H. E.—Land and Fresh-water Mollusca collected in Leicestershire during 1885-6-7. [Ibid, pp. 17—21].

1889.

Quilter, H. E.—Recent additions to the County List of Mollusca. [Ibid, p. 36].

1896.

Adams, L. E.—The Collector's Manual of British Land and Fresh-water Shells. [Contains a census of the distribution of British Mollusca, enumerating most of the Leicestershire species]

1897.

Edwards, T.—Leicestershire Mollusca. [Trans. Leic. Lit. and Phil. Soc., pp. 344—6].

The Journal of Conchology contains many notes on the Shells of the county; also Dr. Jeffrey's British Conchology, 1862; and Rimmer's Land and Fresh-water Shells

VERTEBRATA.

1840—5.

Harley, J.—The Vertebrated Animals of Leicestershire. [MS. copy in the Library of the Leicester Museum].

1885-6-7.

Browne, M.—The Vertebrate Animals of Leicestershire. [Zoologist].

1889.

Browne, M.—The Vertebrate Animals of Leicestershire and Rutland. Map and plates. [Reprinted with additions from articles in the Zoologist].

AMPHIBIA AND REPTILIA.

1889.

Mott, F. T.—The Amphibians and Reptiles of Leicestershire. [Trans. Leic. Lit. and Phil. Soc., pp. 29, 30].

BIRDS.

1840.

Macgillivray.—British Birds. [Contains a Catalogue of the Land Birds of Leicestershire, by J. Harley].

1842.

Babington, Ch.—Appendix on the Ornithology of Charnwood Forest, in Potter's Charnwood Forest.

1879.

Macaulay, T.—Rare Ornithological Occurrences in South Leicestershire. [Mid. Nat., pp. 94—6].

Macaulay, T.—Notes on Ornithology. [Ibid, p. 128 and pp. 159, 188, 211].

1880.

Macaulay, T.—Ornithological Notes from Leicestershire. [Ibid, pp. 68, 119, 146, 146].

1881.

Macaulay, T.—The Birds of Leicestershire, Pt. I., Our Summer Migrants. [Ibid, pp. 253—7].

1882.

Macaulay, T.—The Birds of Leicestershire, Pt. II., Our Winter Migrants. [Ibid, pp. 9—11].

Macaulay, T.—The Birds of Leicestershire, Pt. III., Our Residents. [Ibid, pp. 36—9].

Macaulay, T.—The Birds of Leicestershire, Pt. IV., Our Visitors. [Ibid, pp. 77—80].

1883.

Macaulay, T.—Ornithological Notes from Leicestershire. [Ibid, pp. 85, 86].

1886.

Browne, M.—Arrival of Birds in Leicestershire. [Trans. Leic. Lit. and Phil. Soc., p. 28].

1887.

Mott, F. T.—Songs of some Leicestershire Birds. [Ibid, p. 24].

1889.

Pycraft, W. P.—The Recent Immigration of Sand Grouse (*Syrrhaptes paradoxus*). [Ibid, pp. 37-8].

Storer, G. H.—Some notes upon the Habits and Voices of our British Song Birds, with special reference to those found in Leicestershire. [Ibid, pp. 21—27].

1892.

Browne, M.—The present and past immigrations of the Grey Phalarope, *Phalaropus fulicarius* (*L.*) to the shores of Britain. [Ibid, pp. 462-3].

MAMMALS.

1886.

Browne, M.—Mammal hitherto unknown in Leicestershire. [Trans. Leic. Lit. and Phil. Soc., p. 24. See also Zoologist, 1888, pp. 65-6].

1889.

Browne, M.—Cetacean Remains in Leicestershire. [Ibid, pp. 35-6].

1884.

Mott, F. T.—On the Mammals of Leicestershire. [Mid. Nat., pp. 301—3].

ARCHÆOLOGY, ETHNOLOGY, HISTORY, &c.

IMPLEMENTS.

1881.

Evans, J.—The Ancient Bronze Implements, Weapons, and Ornaments of Great Britain and Ireland.

1897.

Evans, Sir J.—Ancient Stone Implements, Weapons and Ornaments of Great Britain, 2nd edition.

UTENSILS.

1860.

Anon.—On Ancient Basket-work and Antiquities formed of Bone found in Leicester.

RAILWAY HISTORY.

1867.

Stretton, C. E.—Notes on the Leicester and Swannington Railway; and 1881.

1868.

Stretton, C. E.—History of the Nuneaton and Leicester Railway.

1869.

Stretton, C. E.—History of the Coleorton Railway.

1875.

Stretton, C. E.—History of the South Midlands, afterwards the Leicester and Hitchin Line.

1882.

Stretton, C. E.—History of the Leicester and Swannington Railway. Also in 1885 and 1886.

1883.

Stretton, C. E.—History of the Canals and Railways in the County of Leicester.

1884.

Stretton, C. E.—History of the Syston and Peterborough Line. Also in 1898 and 1903.

1885.

Stretton, C. E.—Early Tram-roads and Railways in Leicester.

Stretton, C. E.—History of the Ashby and Nuneaton Joint Railway. And 1893.

Stretton, C. E.—History of the Ashby-de-la-Zouch Canal and Outram Ways.

Stretton, C. E.—History of the Leicester and Burton Line.

Stretton, C. E.—History of the Pinxton and Leicester, afterwards the Midland Counties, Railway. Also 1890 and 1902.

1889.

Stretton, C. E.—History of the Loughborough and Nanpantan Edge-Railway.

Stretton, C. E.—History of the Nuneaton and Hinckley, afterwards the South Leicestershire, Railway.

1892.

Stretton, C. E.—The Canals, Edge-Railways, Outramways, and Railways in the County of Leicester.

1901.

Stretton, C. E.—Leicester to London; the various routes.

1902.

Stretton, C. E.—The Railway Collection in the Leicester Museum.

Stretton, C. E.—The History of the South Leicestershire Railway.

1904.

Stretton, C. E.—The History of the Bagworth Colliery (Private) Railway.

Stretton, C. E.—The History of the Groby Granite (Private) Railway.

Stretton, C. E.—The History of the Ibstock Colliery (Private) Railway.

Stretton, C. E.—The History of the Snibstone No. 2 Colliery (Private) Railway.

Stretton, C. E.—The History of the Whitwick Colliery (Private) Railway.

NUMISMATICS

1857.

North, Thomas.—Leicestershire Tradesmen's Tokens.

1867.

Pownall, Rev. A.—Account of Coins found at Holwell, in the County of Leicester.

POTTERY, ARCHITECTURAL REMAINS, ETC.

1835.

Lockinge, H.—An Essay on the Roman Milliaire discovered in the Via Fossa, near Leicester, A.D. 1771.

1847.

Anon. (*J. Throsby*).—The Roman Milliaire in Leicester, illustrated.

1851.

Clarke, Uriah.—Remarks on the Roman Tesselated Floors discovered in the Cherry Orchard, being the substance of two letters (with additions contributed to the "Leicester Journal," November 21st and December 5th, 1851).

Clarke, Uriah.—Remarks on the Roman Remains found in the Cherry Orchard, Leicester.

1889.

Fox, G. E.—Notes on Roman Architectural Fragments found in Leicester, and now in the Town Museum.

1892.

Jackson, W.—The Roman Pavement and the Jewry Wall, Leicester.

N.D.

Flower, J.—Views of Ancient Buildings in the Town and County of Leicester.

PRINTED BOOKS.

1878.

Jeafferson, J. C.—An Index to the Ancient Manuscripts of the Borough of Leicester.

GENERAL.

1622.

Burton, W.—A Description of Leicestershire.

1767.

Hanbury, R. W. W.—History of the Rise and Progress of the Charitable Foundations at Church Langton, Leicestershire.

1777.

Hanbury, Rev. W.—The Description of Leicestershire, 2nd edition.

1787.

Anon.—Description of Leicestershire.

1789.

Throsby, J.—Select Views of Leicestershire.

1790.

Throsby, J.—Supplementary volume to the Leicestershire Views.

1791.

Throsby, J.—The History and Antiquities of the Ancient Town of Leicester.

1795—1815.

Nichols, J.—The History and Antiquities of the County of Leicester, 3 vols.

1804.

Anon.—A Walk through Leicestershire, with map.

1807.

Britton, J.—A Topographical and Historical Description of Leicestershire. Beauties of England and Wales, vol. ix.

Curtis, J. J.—Topographical History of Leicestershire.

1836.

Hardy, J. Stockdale.—Attempt to appropriate a monument to the memory of Mary de Bohun, Countess of Derby, and mother of King Henry V., &c., now remaining in the Chapel of Trinity Hospital, Leicester.

1840.

Hollings, J. F.—The History of Leicester during the Civil War.

1842.

Potter, T. R.—The History and Antiquities of Charnwood Forest, with an appendix on the Geology, Botany, and Ornithology of the District.

1844.

Walker, T. L.—An Historical Account of the Church of St. Mary, Stoke Golding.

1847.

Akerman, J. G.—An Archæological Index.

1848.

Evans, A. B.—Leicestershire Woods, Phrases, and Proverbs.

1849.

Smallfield, G.—Opening of the Leicester Cemetery and the Leicester Town Museum, 19th June, 1849.

Thompson, J.—The History of Leicester from the time of the Romans to the end of the 17th century.

1855.

Akerman, J. G.—Remains of Anglo-Saxon Paganism.

1859.

Thompson, J.—An Account of Leicester Castle.

1861.

Wright, T.—The Celt, the Roman, and the Anglo-Saxon, 2nd edition.

1862.

Anon.—Facsimile of part of Domesday Book (or Great Survey of England of William the Conqueror, 1086), relating to Leicestershire. Photo-zincographed by Her Majesty's command.

1863.

White, W.—History, Gazeteer, and Directory of the Counties of Leicester and Rutland, 2nd edition. (Also in 1846).

1865.

Kelly, W.—Notices illustrative of the Drama and other popular Amusements of Leicester.

North, J.—A Chronicle of the Church of St. Martin, Leicester.

1867.

Hill, Rev. J. H.—The History of the Parish of Langton, Leicestershire.

Reeve, W. N.—Chronicles of the Castle and of the Earls of Leicester, from the foundation of the Castle to the merger of the Earldom in the Crown of England.

1871.

Thompson, J.—The History of Leicester in the 18th century.

1875.

Burton, John.—The Siege of Leicester in 1645. Substance of a lecture by J. F. Hollings.

Hill, Rev. J. H.—History of Market Harborough, Leicestershire.

Kelly, W.—The Great Mace and other Corporation Insignia of the Borough of Leicester.

1876.

North, T.—The Church Bells of Leicestershire.

1877.

Greenwell, W., and *G. Rolleston.*—British Barrows

Kelly, W.—Visitations of the Plague at Leicester.

1884.

Kelly, W.—Royal Progresses and Visits to Leicester.

1886.

Kelly, W.—Records of the Corporation of Leicester. [Trans. Leic. Lit. and Phil. Soc., p. 13].

1887.

Jackson, W.—Old Leicester Buildings. [Ibid, p. 36].

1888.

Barber, H.—Roman Pavement in Jewry Wall Street, Leicester. [Ibid, p. 14].

Browne, M.—Antiquity of Man in Leicestershire. Plates. [Ibid, p. 7].

1889.

Carter, T.—Danish-Saxon Place Names in Leicestershire. [Trans. Leic. Lit. and Phil. Soc.].

Paget, A. H.—The Beaumonts of Gracedieu. [Ibid, pp. 11—15].

1890.

Fosbroke, L.—Descriptive and Historical Account of the Castle of Ashby-de-la-Zouch. [Ibid, pp. 97—113].

1891.

Johnson, Mrs. Fielding.—Glimpses of Ancient Leicester.

1892.

Andrews, W.—Bygone Leicestershire.

Jessopp, Rev. A.—The Religious Houses of Leicester. [Trans. Leic. Lit. and Phil. Soc., pp. 426—9].

Paul, J. D.—The Ruins in Bradgate Park, their History and Associations. [Ibid, pp. 437—440].

1893.

De Baye, Baron J.—The Industrial Arts of the Anglo-Saxons.

Herne, F. S.—An Old Leicester Bookseller (Sir Richard Phillips). [Trans. Leic. Lit. and Phil. Soc., pp. 65—73].

Herne, F. S.—The Town Library, Leicester. [pp. 249—261].

1895.

Storey, J.—Historical Sketch of some of the Principal Works and Undertakings of the Council of the Borough of Leicester.

1897.

Mott, F. T.—The Human Race in Leicestershire. [Trans. Leic. Lit. and Phil. Soc., p. 340].

1899—1905.

Bateson, Mary.—Records of the Borough of Leicester.

1902.

Tucker, W. T.—On the Discovery of a Roman Villa near Rothley, Leicestershire, in the year 1901. [Trans. Leic. Lit. and Phil. Soc., pp. 175—7, plate and map].

The following Journals, &c., contain many papers on Leicestershire, viz. :—

Reports and Papers read at the meetings of the Architectural Societies of Northampton, the Counties of York and Lincoln, and the Architectural and Archæological Society of Bedford, 1852-3, and under altered name (including Leicester). And 1861—1875, 1880—1883.

Transactions of the Leicestershire Architectural and Archæological Society, 1855—1907.

Collectanea Antiqua, 1861—1880. *C. Roach Smith.*

Proceedings, Society of Antiquaries.

The Antiquary.

Spencer's Almanac.

Leicestershire Notes and Queries.

Archæologia.

The Archæological Journal, vols i. to lxiv., 1844—1907.

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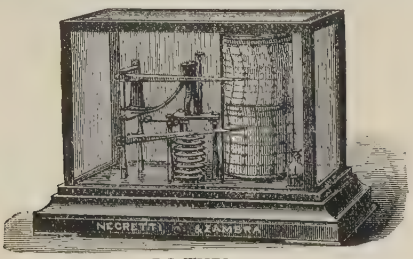

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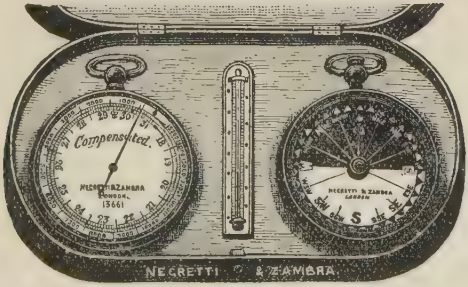

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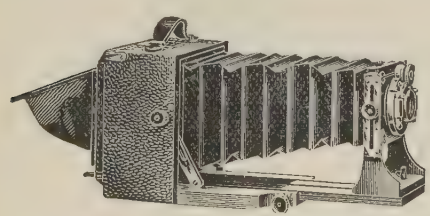

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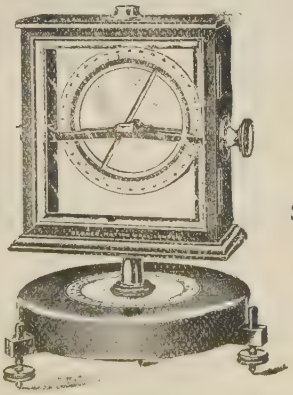

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